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Papers submitted to a meeting of economists, educators, and government officials discuss the organizational implications of the link between education and economic growth. Following an introduction by Henning Friis, the authors and titles of the papers are (1) Necat Erder, "Some Administrative Problems in Educational Planning," (2) Raymond Poignant, "The Role of Educational Plans in Economic and Social Development Programmes," (3) Harold Goldstein, "Manpower Requirements and Educational Organisation," (4) Selma J. Mushkin, "Resource Requirements and Educational Obsolesence," (5) Willem Brand, "Some Reflections on Centralization Versus Decentralization in Education," and (6) Homer D. Babbidge Jr., "Research for Educational Organisation." A summary report was given by Roger Gregoire. (HW)

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STUDY GROUP IN THE ECONOMICS
OF EDUCATION

ORGANISATIONAL PROBLEMS IN PLANNING EDUCATIONAL DEVELOPMENT

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ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT
PARIS 1966

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ORGANISATIONAL PROBLEMS IN PLANNING EDUCATIONAL DEVELOPMENT

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

The Organisation for Economic Co-operation and Development was set up under a Convention signed in Paris on 14th December 1960 by the Member countries of the Organisation for European Economic Co-operation and by Canada and the United States. This Convention provides that the O.E.C.D. shall promote policies designed:

- *to achieve the highest sustainable economic growth and employment and a rising standard of living in Member countries, while maintaining financial stability, and thus to contribute to the world economy;*
- *to contribute to sound economic expansion in Member as well as non-member countries in the process of economic development;*
- *to contribute to the expansion of world trade on a multilateral, non-discriminatory basis in accordance with international obligations.*

The legal personality possessed by the Organisation for European Economic Co-operation continues in the O.E.C.D. which came into being on 30th September 1961.

The members of O.E.C.D. are Austria, Belgium, Canada, Denmark, France, the Federal Republic of Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States.

The Directorate for Scientific Affairs, which is responsible for the publication of the present report, has been established within O.E.C.D. to take charge of the activities of the Organisation relating to scientific research and to the expansion and rational utilisation of the scientific and technical personnel available so as to meet the needs arising from economic growth.

PREFACE

The OECD Study Group in the Economics of Education has been instrumental in stimulating the advance of knowledge in a new discipline. It first contributed to a clearer understanding of the link between education and economic growth and it subsequently explored the policy issues arising from that relationship.

One of the most significant of these issues is the way in which the structures of government and education may be adapted, if education is to make its optimum contribution to economic progress. In November 1963, the Group brought together economists, educators and government officials from the OECD Member countries to discuss the "Organisational Implications of the link between Education and Economic Growth".

The present volume contains the papers submitted to the meeting. Dr. Henning Friis, Chairman of the Study Group, introduced the topics under discussion. In so doing, he was able to draw heavily on his experience as a pioneer in educational and manpower planning for economic growth, as the Director of the Danish National Institute of Social Research and as the initial Chairman of the OECD Committee for Scientific and Technical Personnel. Mr. Roger Grégoire of the French Conseil d'Etat, and formerly Director of the OEEC European Productivity Agency, prepared a critical analysis of the discussion in the General Report.

This volume is the third in the series of publications based on seminars sponsored by the Study Group. It follows the *Economic Aspects of Higher Education,* and the *Residual Factor and Economic Growth.* The volume of the papers and proceedings of the Conference on the *Financing of Education for Economic Growth* are scheduled to appear shortly.

Alexander KING
Director,
Directorate for Scientific Affairs

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INTRODUCTION

by

Henning FRIIS

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The recent trend in economic theory and the consequent emphasis of government policies on education and research as factors of economic growth have opened up a series of new problems in the organizational structure of education. Educational planning and administration can no longer be considered as something apart from economic affairs, and the question arises of whether the organizational structure of education fully reflects the interdependence of educational and economic policies and of the various aspects of the development of human resources.

The present structure of government departments is the result of historical evolution, and as such tends to develop its own internal traditions and institutional attitudes. It reacts only gradually and with a considerable time-lag to shifts in government objectives, and tends therefore to offer a certain resistance to change, especially at a time of rapid changes in the direction of policy. Moreover, the division into compartments and the distribution of responsibilities do not always reflect the needs and complexities of new situations or problems. Is, for instance, the shortage of scientific and technical personnel a question to be dealt with by the Ministry of Education, the Ministry of Labour, the Ministry of Science or the Ministry of Industry and Commerce ? Or is it possibly a problem to be dealt with by a combination of all these government departments ?

This particular question was raised in many countries some years ago, when the shortage of scientific and technical personnel was first recognized as a bottle-neck in economic expansion. It was discussed at the international level, when the OEEC began, some seven years ago, its activities in this field in order to assist Member governments in their efforts to alleviate the shortage of scientific and technical personnel.

The division of responsibilities between government departments as far as scientific and technical personnel is concerned is an important problem. Both the Ministry of Labour and the Ministry of Education are closely concerned with the future supply of and demand for trained manpower. In a number of countries non-agricultural vocational training and re-training are the concern of the Ministry of Labour, but there has recently been a tendancy to transfer vocational training to the Ministry of Education in order to integrate it more closely into the educational structure. Agricultural education, more often than not, is under the jurisdiction of the Ministry of Agriculture; but here too the trend is towards transferring it to the Ministry of Education, although it is less accentuated than in the case of industrial training.

The emphasis of governments on economic growth calls for a concerted effort in most fields of governmental activities. But it also requires a redefinition of policy aims and a consequent formulation and implementation of a programme, tasks for which most present government structures are not fitted. This is also the case of the educational structure. The vital problem is, therefore, how to ensure, on the organizational level, that educational policy is geared, in harmony with other policies, to the promotion of economic growth to an extent that is compatible with its other and more traditional objectives. In this connection, I shall raise certain specific questions with which I am somewhat familiar.

MANPOWER REQUIREMENTS AND EDUCATIONAL ORGANIZATION

The most obvious question arises with regard to the division of responsibilities for manpower and education. The establishment of two separate government departments to deal with human resources originated largely in response to pressures from groups which desired the political recognition that the creation of a ministry would confer. This occurred at a time when the relation between education and manpower was hardly acknowledged. But with the recognition that trained manpower is to education what the stock is to its source of supply the separation of manpower planning and educational planning has ceased to have any justification. The satisfaction of manpower needs becomes part of the responsibility of the educational system, but a part only, because education has other important objectives as well.

Its primary and traditional objective is, of course, the education of the young, and the structures adopted must be in keeping with the demand of the economy for manpower. But the organizational problem becomes more complex when it is a question of re-training or upgrading the skills of people of working age, either because their education was too limited, or because their skills have been made obsolete by technical change. This problem has usually been dealt with by labour ministries but, in view of the constantly changing needs of the technological age, the moment seems ripe for considering lifetime education and its organization within the educational system in the light of economic as well as cultural objectives.

Now if the educational system is to provide the economy with the necessary manpower skills, there must be joint educational and manpower planning based on reliable estimates of future demand for these skills. The several possible approaches to this problem are discussed at some length in Mr. Goldstein's paper, Manpower Requirements and Educational Organization.

While the separation of education and manpower has been of long standing, the organizational separation of research from education at government level is of more recent origin. Indeed, the establishment of special ministries or policy-making bodies for scientific research is a relatively new development. In most countries, universities and institutes of technology have been the centre of scientific activities, combining research with their traditional teaching tasks. Recently, however, research has been carried out increasingly in public or private institutions which have no formal teaching activities and no connexion with universities. This trend is possibly unavoidable and in many instances very useful, but it should not be reflected in an organizational separation of research and education on the policy-making and higher administrative levels. Indeed, such a separation may create inconsistencies in the formulation and implementation of programmes.

The reality is that education is of vital concern to research activity, and research is of immediate importance to educational activity. All research rests on the research scientist, and it is therefore of vital concern to research establishments that the educational system should provide a sufficient number of highly trained research scientists. On the other hand research at the universities provides the intellectual stimulus of professors and supplies the training basis for the graduate students. Research and education support each other.

There is, however, competition between educational institutions and research establishments for highly qualified personnel as well as for public and private funds.

There is thus a need for integrating or at least closely co-ordinating research policy and educational policy at the planning and higher administrative levels, and the major organizational issue is how to achieve this within an institutional pattern which would ensure expansion of both research and education. Whatever the institutional arrangements, they would have to include some mechanism for solving the problem of competition for funds and highly-qualified manpower between the teaching institutions and the research establishments.

ECONOMIC POLICY AND EDUCATIONAL ORGANISATION

The recognition that education is a long term investment in human resources for economic growth implies a close co-ordination of education with economic policy and a continual co-operation between the authorities responsible for education and those responsible for economic affairs in the implementation of policies.

The organizational structure adopted will depend naturally on the degree and effectiveness of national planning activities. Where there is a unified plan there is already close co-ordination between educational activities and economic policy, between the educational plan and the economic plan. The less the degree of planning, the greater the need for mutual understanding and consultation between those responsible for educational policy and those in charge of economic policy.

The educational planning groups set up under the auspices of OECD in a number of countries provide in a sense a model for the technical staff for national agencies seeking to re-orientate education so as to encompass economic motives. Continuous programme development however, is essential, and the question is how the *ad hoc* work of the teams shall be integrated in future government structure. *Ad hoc* bodies can have a shock effect, but experience shows that this effect soon disappears if it is not followed up continuously.

The purpose of this meeting was not to agree on ideal solutions; this would not only be difficult in the short time alloted to us, but impossible for all kinds of other reasons. The administrative machinery in each country varies according to national traditions, attitudes, philosophies, personalities and accidents. The functions and policies of the ministries are as varied as the names by which they are known. This divergence is further accentuated by the differing attitudes towards planning. Among the OECD Member countries the range extends all the way from a complete absence of central government planning of educational or economic activities to a structure in which all governmental activities are encompassed by and subordinated to a plan. It is preferable to recognize that there can never be a perfect solution to an organizational problem; the dynamic nature of modern society requires a flexible organizational structure.

The hope of this meeting was to suggest organizational solutions consistent with national policy objectives; to indicate areas where new problems raise the need for new solutions; to locate areas where further studies may be justified; and to draw attention to the fact that such organizational problems can be openly discussed.

SOME ADMINISTRATIVE PROBLEMS IN EDUCATIONAL PLANNING

by

Necat ERDER

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of State Planning Organisation. Turkey

This paper deals with some of the administrative problems raised in the course of educational programming activities in Turkey. The facts are selected on the basis of their relevance both to the planning objectives and to other developing countries, and are presented within a general framework in order to facilitate comparisons and generalisations. The first part deals with the functions of education in a developing country, the major choices to be made in educational programming in relation to these functions, and political and administrative decision-making processes involved in making these choices, as well as the problems resulting from the interaction of the decision-making points. The second part takes the Turkish case to illustrate the issues presented in this general framework.

THE GENERAL FRAMEWORK

The functions of education in a developing country can be grouped into four main categories :

1. Education is a major instrument of social change. The desire for development is a choice of a way of life with particular patterns of social organisation, values and behaviour. Education, as a mechanism of transfer of values and skills, is a means of achieving it.

2. Education is an important social service, because it gives the individual the possibility of acquiring the tools of knowledge.

3. Education can be a major instrument of a rational income distribution policy, because it creates equality of opportunity and, consequently, social mobility. It is a rational instrument, because it results

in distributing social tasks on the basis of talent and ability and, therefore, maximises productivity.

4. Education is a manpower industry producing the skills necessary to a modern community.

Major choices and decision-making points

Consideration of education as an instrument of social change necessitates a fundamental political choice of the values to be transferred to future generations, a clear philosophy of education which should be of an operational character in order to guide action. In the absence of such a choice, planning would become haphazard, and implied choices would be substituted for the fundamental one. This choice has to be made by political decision-makers, i.e., governments and parliaments, but it must be made on the basis of expert technical knowledge which is needed both for formulating and implementing these fundamental policy decisions. Such knowledge may be applied, for instance, to analyse the relationship between various educational systems, methods or institutions and the social results to which they may give rise. It is necessary to test continually such assumptions on the basis of which major decisions are taken and programmes implemented. This is a permanent research and evaluation task which must be performed by an appropriate organisation, but a brains-trust responsible for the distribution of tasks and the analysis of the results might prove necessary.

The concept of education as a service raises the demand aspect of the problem, i.e., the response of the community to education. There may be here a conflict between the policy-makers and the public, particularly when the demand for education is not the determining factor in the organisation of the supply. This is a delicate problem, because political and sometimes administrative pressures reflecting the community's demand may destroy or distort planning efforts, especially at the stage of implementation. It is a question of balancing public pressure by persuasive arguments on the part of the responsible authorities.

The concept of education as an instrument of rational income distribution raises the problem of choice in the regional distribution of educational institutions. At the lower levels this choice is of vital importance for social mobility; at higher levels scholarship schemes with their attendant geographical mobility make this choice less important. Conditions of entrance, fees, the relative quality of public and private institutions or of public institutions in different regions are other important factors which should be explicity formulated in educational plans. The development of criteria for the geographical distribution of institutions is an essential technique of programming and should be considered as an important task for technicians.

Lastly, educational planning is usually considered as programming the supply of skills on the basis of requirements. This important aspect can be considered as the central exercise to be completed by others. The important steps in this exercise are :

a) forecasting skill requirements in terms of broad categories;
b) translating these skill categories into educational requirements;
c) programming the supply of skills through educational institutions;
d) implementing these programmes by translating broad categories into specific lines of action, e.g. projects.

At present the exercise in this field seems to be limited to programming in terms of broad categories, mainly for the purpose of estimating the allocation of resources. But as it has been observed in general economic planning exercises, the exigencies of concrete action following the macro-phase modify profoundly the perspective of planners and have a feed-back effect on the initial phase of the exercise. It is therefore useful to discuss in more detail these aspects of educational planning in terms of choices and decision-making points.

Translation of skill categories into educational categories, and organisation of the supply necessitate the following choices :

First, the choice between formal education and other forms of training. This is particularly important in the case of middle and low-level technicians - should they be trained *in industry*, or in vocational, technical or trade *schools* The answer would obviously have a determining influence on the educational system. The problem arises in a different form for the highest skill categories, such a managers.

Secondly, the choice of the type of institution for the production of specific skills. This involves the problem of preparatory background, level and period of study, curriculum, teaching methods and personnel, and necessitates a thorough evaluation of existing institutions with a view to possible reforms or creation of new types of institutions appropriate for the purpose. In the case of training within industry, this aspect of programming seems to be neglected. The organisation of an adequate system would be a huge task. But preference is given to the easier form of programming in the field of formal education.

Thirdly, the choice of size, technology and technique of construction in relation to its function, cost, location and speed, including the choice between creating a new institution or expanding an existing one, if additional capacity is needed.

Educational planning for the supply of skills requires the co-operation of central economic and social planning agencies, sector experts, departments responsible for educational policies and operations, educators, and technicians responsible for projects. Forecasting of skill requirements can be handled by central planning agencies, but the co-operation of sector experts is necessary even when projections are made in aggregate form. Definition of skill categories in terms of educational requirements must be handled jointly by educational experts and sector experts. Determination of the forms of education needed, evaluation of existing institutions and consideration of new types of institutions is the province of those who are responsible for educational policies and operations. When completed with cost estimates (which can be prepared with project technicians in the case of constructions costs), the operation would form a first phase of programming, which consists of preparing a framework for future action in terms of broad categories and estimating the resources to be allocated. This phase can be organised under the auspices of central planning agencies in close co-operation with departments and experts as mentioned above. The problem here is one of *common language* between planners, educators and other technicians. The former have to be made to think in terms of broad planning concepts and economic constraints and priorities, the others in terms of the contraints proper to the field of education. Lack of co-operation between educators and planners may result in planning on the basis of continuation of past experience, maintenance and even codification of the existing system with all its defects, a wasteful and irrelevant exercise.

Within this broad framework of long-term planning, programming for specific lines of action, i.e., for the creation of new capacity in the form of new institutions or expansion of the existing ones, and development of appropriate policies, would be the function of agencies responsible for education. This important step in educational programming needs to be tackled in a systematic way, and there are a number of important problems to be solved.

The first of these is the creation of a decision-making machinery for the distribution of tasks in programming. Educational administration is usually divided between several ministries and departments without a clear distribution of functions. Universities may enjoy a certain degree of autonomy and consider themselves as outside the general system of education and not called upon to perform the tasks which may be assigned to them. Technical and vocational schools may be under the authority of various ministries with different concepts of educational objectives, and thus conflicts may arise. There may also be difficulty in finding an agency having a global view of the problems of education to consider *new tasks* which have to be performed. For training within industry, it may be difficult to find a proper administrative machinery to take responsibility for its organisation; ministries of labour, industry and education, employers and trade-unions may compete for power in this field.

These difficulties in programming may be aggravated during the implementation through an inadequate perception of their tasks by the various agencies concerned.

THE TURKISH EXPERIENCE

The Institutional structure

Turkey has a central planning agency, the State Planning Organisation (S P O), responsible for preparing economic and social plans at national and regional level and for following up their implementation. This agency is an Under-secretariat attached to the Office of the Prime Minister and divided into three departments : Economic Planning, Social Planning and Co-ordination. The technical staff of the agency has direct access to political decision-makers through the High Planning Council, which is headed by the Prime Minister and composed of three ministers and four high officials of the S P O (The Under-secretary and the three department heads). The Council supervises the planning activities, discusses the plans and the issues related to them, and submits the plans and advisory views to the Cabinet. Its composition aims at giving an opportunity for a formal exchange of views between the technicians and the politicians involved in planning. The three ministers are elected to it by the Cabinet, and so far no Minister of Education has been elected as member of this Council. But he participates in its work when the problems of education are discussed, with the Ministers of Health and Agriculture.

Responsibility for educational affairs is divided mainly between the Ministries of Education, Agriculture, Health, and Defence, but some vocational schools are under the Ministries of Transport and Finance. Universities are theoretically attached to the Ministry of Education, but they enjoy a varying degree of administrative and academic autonomy ; in fact, there are differences in the legal status of the various universities.

Training in industry is compulsory by legislation, and the Ministry of Labour is responsible for its supervision ; but the Ministry of Industry has similar responsibilities in certain sectors, especially with regard to State economic enterprises.

The Ministry of Education has a Board of Education responsible for policy problems, especially in matters of curricula for the schools which are under the Ministry of Education. There is also, within the Ministry, a permanent Research Centre with special interest in educational tests. A High Educational Council, composed of representatives of various groups in the educational community, meets every few years (there have been seven meetings so far) to discuss basic policy issues in the field of education and make recommendations to the Minister of Education.

The Ministry of Public Works is responsible for the preparation of projects and the construction of almost all educational buildings.

The process of educational planning

The State Planning Organisation was set up in October 1960 and was given the assignment to prepare a five-year economic and social development plan before June 1962. The Social Planning Department was made responsible for the preparation of the educational aspects of the plan (the personnel responsible for this work are also members of the Mediterranean Regional Project team headed by the Director of the Social Planning Department). This Department defined its planning function as limited to aggregate quantitative projections of the needs for various skill categories, their translation into broad educational categories, expression of the magnitudes (graduates, students, teachers, sub-group graduates, students and teachers, teacher training, expenditures for construction and administration, etc.), and allocation of resources. Estimates for skill requirements were based on manpower studies at sector level related to the output targets set by the economic part of the plan. Sector programming committees, composed of experts working in government departments and private or public enterprises, were also given an assignment to estimate present shortages of skill and future needs of the sector. This was used to check the results of the aggregate forecasting exercise. Special groups worked on health and agricultural personnel. Some of the political decisions for education, such as universal primary education for the coming decade, were also included. A special survey of the present state of training within industry was conducted to estimate the capacity in this field. Estimates for requirements in fields such as research etc. were added to complete the picture. Experts and ministries involved in educational activities were consulted at various stages.

The limitation of work to broad quantitative estimates was considered as the dividing line between the responsibility of the State Planning Organisation and that of the ministries. The programme indicated projections of major categories of students, teachers, additional capacity to be created and various elements of cost for a period of 15 years. Future educational policies (with specific references to regional distribution, scholarship schemes), formulated with the interested ministries, covered the quantitative part. It was thought that further phases of planning, including decisions about the type, size and location of institutions, about methods, periods and curricula, would fall within the responsibility of ministries, and would be subject to shorter-term programmes. The results of this exercise were discussed with a group of high officials of the Ministry of Education appointed by the Minister and with officials of other ministries. This programme was integrated into the Five-Year Plan through a process of discussion in a high-level technical group and presented to the High Planning Council. The educational part of the plan was discussed in the High Planning Council in the presence of interested ministers, finalised in the Cabinet and approved by Parliament. During this process the original work of the team was subject to only minor modifications.

It is interesting to note that, parallel to the work in the State Planning Organisation, a very large group, composed of educators and educational administrators detached for this purpose, was involved in an effort of educational programming for the area of competence of the Ministry of Education. The mandate given to the group was to cover all aspects of education, such as fundamental policy principles, statement of objectives, and reorganisation of the Ministry. Several committees were working on special levels and fields of education, analysing present problems, suggesting reforms in organisation, norms for teacher/student ratios, methods of teaching, periods of study and curricula. The committees were also involved in setting quantitative targets. These targets were established on various bases, such as international comparisons of the proportion of students of a certain level in a given age group or within the total student body, or independent estimates of the needs for graduates. The preliminary estimates of total financial requirements were several times higher than plan figures, which foresee a significant increase over the past expenditures. The activity was limited in scope, covering only the Ministry's field of competence. This exercise ended in the production of a series of documents presented to the High Educational Council. Several proposals were adopted by the Council and recommended to the Minister for action.

The relationship between the team working in the SPO and the educational programming group was established through joint participation in committee discussions. After the first contacts with major committees it was possible to reach an agreement on the division of functions mentioned above, leaving the aggregate quantitative projections to the SPO. These contacts were useful to the SPO team in revising some assumptions used in establishing educational categories.

Some problems in Educational Planning

These problems will be discussed according to the classification of the functions and choices :

a) Planning in the absence of clear policy orientation seems to be the fate of countries in the beginning of their planned development effort. This is largely true for educational programming in Turkey. Basic principles and objectives of educational policy covering the whole field and meeting the problems faced by a country preparing for planned development have not been stated in a form which would provide a guiding framework for technicians involved in planning. General principles announced in the Constitution and the "government programmes" are difficult to interpret as operational directives. A new formulation of principles was difficult because of the lack of intellectual preparation, and there was no agency which had the authority and responsibility for such preparation. Within the government, the personality of ministers was the major variable affecting policy. Many of the fundamental policy problems (the role of religious education, the time-period of secondary education, etc.) would receive different interpretations by different ministers.

The planner implicitly or explicitly "assumes" or interprets. The easiest assumption is to accept the *status quo* or what one thinks is the present practice. Thus an interpretation of a situation becomes the basis of a "commitment" for fifteen years, with very important practical results. A permanent Cabinet committee composed of the ministers concerned and an educational policy group extending to the administration has been proposed to cope with this problem in the future.

b) An educational programme prepared on the basis of the objective evaluation of the "needs" of the economy does not take into account the "demand" as perceived by the community. This may have certain important political implications, as illustrated by the following problem. The projections of the plan, based on "needs" and on a balanced growth of levels of education, show an increasing need for new capacity in technical schools at the secondary level, while demonstrating "excess capacity" for lycees. This was the basis for programming which envisaged for lycees only the improvement of present conditions, such as size of class, teacher/student ratio etc. But lycee education has a high prestige value as a status symbol and is preferred to education in technical schools. The community pressure is being used both by politicians and by administrators responsible for the secondary general education to modify this aspect of the programme.

c) Assumptions of the type mentioned above were made for the distribution of educational facilities between various regions and income groups. Some criteria were developed and proposed for the regional distribution of investments. The problem faced here is a complicated one of implementation, involving resistance to regional pressures and the development of adequate policies of encouragement to teachers for staffing the institutions in underdeveloped regions, and even schools in some low-income urban areas.

d) The problems faced in relation to the manpower planning aspect of the exercise may be summarised as follows :

Different concepts of planning. Communication between "planners" intruding into education and those responsible for education has been very difficult. The perception of problems, the general outlook and methods of thinking are different. The distribution of decision-making points in educational administration adds to the difficulty. Formation of planning groups as counterparts of the SPO in the administration was conceived as a formula, but its implementation has been delayed because of its formal character necessitating change in administrative structure. The task of creating a common language, a proper division of labour and a method of co-operation remains to be achieved. Identification of various aspects of programming, and development of some principles in the organisation of the work may be interesting topics for discussion.

Difficulties in the distribution of tasks. The complicated character of educational administration creates a problem of task distribution in both programming and implementation. In the absence of such a mechanism the planning organisation may assume an authority which exceeds planning proper. This difficulty has been observed in various forms, e.g. :

- *The conflict of competence.* The Ministries of Agriculture and Education would claim competence over the rural community development programmes, considered as a form of adult education or agricultural education or even agricultural extension. The Ministry of Health would tend to include this in a socialisation scheme. The Ministries of Education, Industry, and Labour were unable to agree on where the main responsibility in the field of training within industry should lie. The problem is being handled by a co-ordinating committee without an agency responsible for programming and implementation.

- *Reluctance to assume functions.* The responsible department of the Ministry of Agriculture refused to assume the responsibility for carrying out the ambitious programme in the field of agriculture for which no other agency would be made responsible. Universities refused to change their habits in the recruitment of "assistants" to meet the additional needs for teaching staff of the future universities.

- *Indecision concerning alternative ways of attaining objectives.* Indecision about the ways to create new capacity in higher education (new university versus expansion of existing ones, or other types of institutions), and lack of projects in this field may delay the second phase of programming and implementation. Responsibility for *project preparation* in this field seems to be a function without office.

What is true for projects appears also to be true for other cases where creation and adaptation are required. Planning is not a substitute for innovation. It can help to detect problem areas, but it can also be a form of codification of the existing situation into a sterilising rigidity. Innovation is a function of administration but cannot easily be achieved by institutional arrangements. Institutions devised for this purpose are easily lost in the details of routine work. This is the case in Turkey. Planning organisations with their monopoly of programming knowledge and their overall view easily assume an authority for administrative decisions which is compatible with their functions. This is a simple process when they can influence decisions regarding budgetary allocations, which is the case in Turkey. This may be justified in the initial stages, but in the long run it can develop into a pathological situation, with all the consequences such a situation entails.

These are some observations of a «planner», who is neither an educator nor a public administration expert, on his experience of administrative problems in planning education. The causes of these problems are not analysed. They may be attributed to the nature of the exercise, the characteristics of the problems themselves, or to the specific situation in Turkey. It is hoped that discussion on these points will help to clarify the issues and prepare the ground for a systematic analysis in the future.

THE ROLE OF EDUCATIONAL PLANS IN ECONOMIC AND SOCIAL DEVELOPMENT PROGRAMMES

by

Raymond POIGNANT
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Paris, France

The drawing up of a plan for economic and social development should not lead us to expect miracles. It is simply a matter of trying to determine the possible or desirable development of the economic and social system over a period of time, and of marshalling and ordering a country's efforts accordingly. Nor does the planning of educational development in the context of an overall economic plan mean trying to define the ultimate goal* of an educational system; its more modest aim is to determine the resources to be used by the authorities for the purpose of education over a given period (generally four to five years) and the needs which (in terms of premises and teachers) correspond to medium-term targets and forecasts for school and university enrolment (i.e., over the next ten years or more).

These targets and forecasts, and an inventory of the corresponding resources, should be drawn up not in the abstract but with reference to a whole set of concrete realities, bearing in mind, for instance, that the resources sought for education are bound to be weighed against other national needs, and that choosing between these needs, which is the very essence of planning, can be done only by the highest national authorities (government and parliament).

DEVELOPMENT OF THE EDUCATIONAL SYSTEM AND THE CHANGING UTILISATION OF THE GROSS NATIONAL PRODUCT ENVISAGED IN THE PLAN

In purely economic or national accounting terms, drawing up a plan for economic and social development entails :

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* Which changes as time goes on.

The choice of an annual growth rate and, consequently, an annually increasing gross national product (G.N.P.);

A series of forecasts (or decisions) for each year covered by the plan relating to the utilisation of G.N.P. for :

i) gross fixed capital formation (distinguishing between "social" investment of government and "productive" investment of enterprises);
ii) consumption expenditure by public services;
iii) private consumption expenditure;
iv) changes in stocks;
v) external trade.

From the point of view of national accounting and the financing of the plan, decisions taken on educational matters cannot therefore be isolated from the whole; the educational development plan is part of the country's overall plan for economic and social development.

As far as educational development plans are concerned, special attention should be paid to fixed capital formation and its distribution under the national economic and social plan. When compiling a plan, it is in fact one of the essential points to know what proportion will be devoted to "investment" (gross fixed capital formation) and thus withdrawn from consumption. The competition (in the short term) between investment and consumption precludes any abrupt rise in investment funds which would reduce or merely stabilize the purchasing power of individuals. Experience shows, in fact, that the percentage of fixed capital formation, though it may edge upwards, remains relatively stable. France may be cited as an example :

Table 1. RATE OF INVESTMENT IN RELATION TO GROSS DOMESTIC PRODUCTION (1)

(Percentage)

YEAR	1949	1956	1959	1960	1961	1962
Gross fixed capital formation (all sectors.	19.3	20.3	21.2	20.8	21.8	22.0

1. *Source :* Etudes et conjoncture, No. 8-9, 1963

Consequently, for a rapidly growing educational system (as in France), which necessarily requires large investment funds, the problem is to obtain :

either a new and more favourable distribution within a fixed volume of investment (an obviously difficult matter, as this involves cutting down other investment);

or, (which may be easier) a priority claim on the increase in G.N.P.

Table 2. CHANGES IN THE GROSS FIXED CAPITAL FORMATION FOR PUBLIC EDUCATIONAL ESTABLISHMENTS

YEAR	G.N.P. (MARKET PRICES)	GROSS FIXED CAPITAL FORMATION ('000 mi llions new francs)				
		TOTAL OF PUBLIC AND PRIVATE INVESTMENT	TOTAL GOVERNMENT INVESTMENT		of which : EDUCATION AND RESEARCH	
				% OF G.N.P.		% OF G.N.P.
Middle of 2nd Plan 1955	170	29.3	3.6	2.1	0.9	0.49
End of 3rd Plan 1961(1)	309	62.3	7.290	2.35	2.3	0.75
End of 4th Plan 1965(2)	(targets) 384 (+24 %)	81.3 (+ 30 %)	10.9 (+ 50 %)	2.8	4.0-4.2 (85-90 %)(3)	1.1

1. *Source :* Comptes de la nation – France.
2. Estimated in 1961 prices.
3. This estimate assumes that investments will be made in accordance with the timetable of the plans.

This question of the volume of investment under a plan is obviously vital for education because it governs everything else : decisions to allocate funds for building determine almost automatically the funds which, later on, are allocated for operational purposes, for the two are in fact inseparable. The example of the French School and University Plan for 1962-1965 shows how the share of gross fixed capital formation for public educational establishments changed as compared to the previous plan (Table 2).

On the basis of the main hypotheses of the 1962-1965 Plan, namely : an increase in G.N.P. of 24 per cent by 1965, as compared with 1961, an increase in "productive" investment of 28 per cent as compared with 1961, and an increase in "social" investment of 50 per cent as compared with 1961, the growth rate envisaged for the fixed capital formation of educational establishments is about 85 to 90 per cent.

This is an example of priority being given in a national economic plan to "social" investment and particularly to educational and scientific investment; clearly it entails an expansion in operational expenditure at a much faster rate than that of economic growth.*

In view of the relatively high rate of investment chosen, which cannot easily be increased, any further rise in educational investment would mean either a decrease in "productive" investment (jeopardising the growth rate), or a reduction in other "social" investment, figures for which are given in Table 3.

Table 3. GOVERNMENT GROSS FIXED CAPITAL FORMATION IN 1959 AND 1961

(In '000 millions of new francs)

	1959	1961
General administration	0.60	0.77
Education and research	2.14	2.31
Public health	0.24	0.27
Rural social investment	0.92	1.1
Urban social investment	0.86	1.2
Roads	0.81	0.99
Other transport infrastructure	0.38	0.56
Total	5.95	7.20

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* As a result, expenditure on education in France, which was 3.8 per cent of G.N.P. in 1961, will amount to 5 per cent around 1966-67, or perhaps earlier.

This is the point at which we find expressed in the crude but alas vital terms of national accounting, the problem of the major choices which govern the formulation of a plan for economic and social development.

How then, in the light of the expected growth of G.N.P., the expected rate of overall investment, and the total amount of social investment planned, can a choice between the various categories of government investment be made, and the share of education determined ?

The answer to this question is clearly linked up with the estimation of the needs of the various sectors and of their relative urgency. We shall return to this point in our conclusions.

As far as education is concerned, the next point to investigate is how the authorities which plan educational development set about drawing up a first project which, fitted into the draft economic and social plan, is then submitted to the government for approval and possible amendment, prior to its adoption as the new educational plan.* This brings us to the problem of methodology.

DECIDING THE OBJECTIVES OF AN EDUCATION DEVELOPMENT PLAN

Before making an inventory of additional educational needs (buildings, equipment, teachers, etc.) for inclusion in the plan, forecasts are required of the extra numbers who will attend schools and universities ; in addition the inventory should in most cases take account of desirable qualitative improvements in education (e.g. reduction in the average size of classes, development of teaching techniques), and various other factors (migratory movements, replacement of old buildings etc.). The main difficulty in planning educational development lies in the forecasting of total enrolments. These are necessarily based on a delicate analysis of the factors affecting enrolment trends, i.e. :

The Population Trend. This clearly provides the basis for the forecasting or enrolment numbers ; on the whole this presents no difficulty when the demographic statistics are reliable. At the regional level, however, forecasts may be seriously complicated by migratory movements. In general, the considerable rise in the birth-rate which marked the post-war period in many Western countries makes this factor of great current importance.

Social Demand for Education. This factor is hard to define and analyse ; it is reflected in the evolution of parental attitudes towards the various forms of education which follow compulsory primary schooling. Sociological studies made in all countries have brought to light :

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* Covering 4 or 5 years in France.

- a difference in attitude according to socio-occupational group; nearly all children in some social groups (e.g. executives, liberal professions) attend secondary schools; working class children (of peasant farmers, labourers, etc.) do so more rarely;
- a difference in attitude according to region; for instance the enrolment rate in the agricultural departments of Southern France is higher than elsewhere in the country.

The differences can be partly but not entirely attributed to the standard of living; social and regional variations in enrolment rates often reflect differences in cultural, family (or regional) traditions, and also the variety of (often economic) objectives which in the parents' view warrant further education. Nevertheless, probably because of the general rise in the standard of living in the industrialised countries, a growing number of parents want their children to receive more education; large numbers of middle and working-class children are now entering secondary schools, and the trend is gradually spreading to higher education.

Table 4. TREND IN ADMISSION RATES, FIRST YEAR
"LYCEES CLASSIQUES ET MODERNES (L.C.M.)"
AND "COLLEGES D'ENSEIGNEMENT GENERAL (C.E.G.)"
BROKEN DOWN ACCORDING TO SOCIAL ORIGIN

	1953*	1962		
	TOTAL	C.E.G.	L.C.M.	TOTAL
Paid agricultural workers	13 %	21	11	32 %
Farmers	16 %	24	16	40 %
Workers	21 %	29	16	45 %
Craftsmen and shopkeepers	39 %	34	32	66 %
Office workers	45 %	34	33	67 %
Supervisory staff	81 %	29	55	84 %
Businessmen	68 %	27	57	85 %
The professions	87 %	18	75	93 %
Executives	86 %	19	75	94 %

Source : Revue Population, No. 1, 1963.

* Excluding the Seine Département.

From the planner's standpoint, the problem is to assess the effects of this on enrolment during the operative period of the plan. The situation varies considerably from one country to the next over the same period. In some countries, a traditional parental outlook is preserved by a conservative social ethic, while in others, such as France, there has been, since the end of the war, a widespread realisation at all social levels of the importance of further study and this has been the decisive factor in the striking increase in those receiving secondary and higher education over the past twelve years.

Government Education Policy

There is a close link between the trend of social demand for education and government educational policy. To some extent, as a natural sociological consequence, this policy reflects or sanctions the social demand. Government policy may also, from democratic considerations, promote and stimulate this demand and accelerate changes in parental attitudes to further education; a policy of democratisation of education may take the form of :

Raising the school leaving age ;

Completely free education ;

Reform of the system of secondary education to make it more democratic for instance, automatic admittance to the first part of the secondary school course) ;

Admission to higher educational establishments to holders of diplomas of technical schools ;

Material assistance (scholarships, free travel, boarding facilities, student restaurants, student hostels, etc.).

In the many countries where such an educational policy is now followed, enrolment is soon affected; it is clear that there must then be a link between such government policy and the financial decisions taken in the educational field.

Economic Development Policy and Educational Development

In the last analysis, economic development is the driving force of educational development. It acts in two ways :

First, the rise in living standards creates material and psychological conditions in the family which favour the further education of children. From this point of view education may be regarded as an item of consumption, more of which is consumed as the standard of living rises ; broadly speaking, subject to the reservations already made, the trend of spontaneous demand for education is largely the reflection of economic progress.

Secondly, while technical progress frees Man from menial tasks and allows young people to stay at school longer, it also generates a steadily growing demand for skilled and highly qualified manpower throughout the economy; a constantly higher standard of general education and occupational training is thus required of the whole working population. What is more, labour shifts from one sector to another as a practical result of successive plans for economic development call for considerable versatility in vocational training together with facilities for retraining. The impact of economic development on qualifications and methods of training thus includes an overall expansion of general, vocational and technical secondary education and of higher education. Viewed from this angle, the outlay on education becomes an investment (in "human capital" formation), whose very high return is emphasized by modern economists.

This twofold approach shows the interaction of educational and economic development; economic development permits educational development and, conversely, educational progress is a necessary condition to economic progress. It shows, as well, the need to take into account the executives and experts required for economic development when forecasting educational development.

In many countries, the need to satisfy the economy's requirements of skilled manpower (especially scientists and technicians) has, for some years, been the reason for the interest taken in educational planning. The link between economic requirements and the amount of training provided by schools is very difficult to define, but is essential for orientating educational planning.

A first point to note is that the respective roles of school and firm in training unskilled labour are not the same in every country. In some countries, the firm bears most of the responsibility, the school perhaps merely providing further general education through evening class or part-time day courses. In others, skilled workers are trained full-time in technical schools. The formulation of the educational plan is influenced, as regards this kind of training, by the system adopted. For executives and managerial staff full-time training is tending to become the rule.

The main difficulty of forecasting in this field arises from the time-lag between returns on "productive" investment (factory building, etc.), and returns on educational investment.

Generally speaking, the former helps to increase the supply of jobs and production under the four - or five - year plan during which it is made; but educational investment and the building of new technical and engineering schools under a given plan does not increase the number of graduates entering the labour force until five to ten years after the initial decision, in other words, until the subsequent economic plan, or later still. As a result, the additional demand for skilled or highly skilled manpower which emerges while a plan is in progress cannot be satisfied under the current educational plan, but only as the result of previous plans*. Conversely, the targets for vocational and technical training under any one plan must be related to manpower requirements much further ahead. An attempt must therefore be made to forecast at least 12 to 15 years ahead :

The probable or desirable breakdown of the active population by sectors ;

Within each sector, the breakdown by levels and forms of training, in order to decide the importance to be given to technical or vocational investment in schools and universities.

Long-term forecasts of the changing pattern and qualifications of the active population have become an important element in educational planning, but major uncertainties persist as to the existence of and requirements for future jobs. There are several reasons for these uncertainties :

The lack of information in most countries about the current employment situation ;

The unreliability of information concerning present "deficits" ; the notion of a "deficit" pre-supposes that an optimum employment situation has been worked out for the various sectors of activity ; the idea of an optimum employment situation, however, has often been interpreted in widely different ways ;

The difficulty of foreseeing 15 or 20 years in advance how changes in techniques and forms of production will affect the pattern of skills in the different sectors.

In any event, the more or less distant prospect of a higher general standard of education will, quite apart from technical progress, modify present ideas of skills required in particular occupations. This is another aspect of the interactions already referred to, which are bound to increase in importance with the extension of further education.

It is these uncertainties which justify the need to provide the labour force as a whole with a general education and with occupational training of a versatile character. However, they should not be regarded as rendering long-term forecasting valueless ; such forecasting is in fact essential for mapping out the main lines of the investment in professional and technical training to be made under a plan ; forecasts of this kind will be of value only if they are constantly revised, of course.

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* Insofar as such training has to be provided by formal education.

Clearly, the educational forecasting bringing all these factors into play is first and foremost the responsibility of the Ministry of National Education; however, in view of the complexity and many implications of the work, it should be carried out in close liaison with the other ministries and organisations concerned. In France, this work is centralised and co-ordinated in the *Commissariat Général du Plan* and its *Commission de l'Equipement scolaire, universitaire et sportif.*

GOVERNMENT AND PARLIAMENTARY ALLOCATION OF INVESTMENT UNDER THE ECONOMIC AND SOCIAL PLAN AND THE PUTTING INTO OPERATION OF THE EDUCATIONAL PLAN

Allocating Investment

Overall forecasts of educational development at the various levels can be made in the light of the factors analysed above (demographic, social and economic factors and government policy). The extra resources (premises and teachers) to be made available for education over the period of the plan are assessed on the basis of these forecasts; this estimation should also take into account, as far as possible, future qualitative improvements in the working of the educational system. A first draft plan is thus arrived at* which from the financial point of view has to be weighed against the demands of all other sectors. Experience shows, as might be expected, that the total requested by the various authorities concerned with drawing up the plan exceeds the funds available.

The crucial problem is thus the allocation of investment funds between "productive" and "social" investment on the one hand, and the various categories of "social" investment (see Table 3) on the other.

In these two instances, fundamental choices are involved which can be made only by the government (on the proposal of the planning services)** and, ultimately, by parliament.

These choices are not governed by objective criteria; they depend on the priorities of the moment (which vary from country to country) and even more on the image each society has of its own solution. There seems to be no doubt, however, that in most countries the share of "social" investment (in schools, hospitals, roads, etc.) will tend to grow considerably; this is, in fact, already happening in France, as shown in Table 3.

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* In France, the report of the *Commission de l'Equipement scolaire.*

** In France, the *Commissariat du Plan.*

The authorities' decisions finally lead to the adoption of the economic and social plan, or, in financial terms, the fixing of the major aggregates of funds for the various kinds of investment. It is at this stage that the final content of the educational plan and the annual rate of investment are determined. The government decisions may result in some of the objectives of the first draft plan being subjected to further scrutiny, and in some of the less urgent parts of the programme being carried over to the following plan. At this point, therefore, an order of priority has to be drawn up for the various growth factors of the educational system :

i) population growth is, in principle, an immutable factor (at least as far as compulsory school attendance is concerned);

ii) the social demand (usually for general secondary education) may or may not be fully catered for; the French plan for 1962-65, like previous plans, takes it fully into account. However, in view of the difficulties (recruitment of teaching staff, for instance) arising from a sharp rise in enrolment, this policy is not followed in every country;*

iii) the need for skilled and highly qualified manpower should be fully taken into account in any plan for economic development; the French plan for 1962-65 keeps the targets for vocational, technical and scientific training originally fixed by the *Commission de l'Equipement scolaire et universitaire* of the *Commissariat du Plan* in agreement with the Manpower Committee, namely, for 1970 :

- 23 per cent of the relative age group in technical colleges (compared with 5 per cent in 1961;
- 17 per cent of the relative age group in the " classes de seconde " (highest form but one) in technical lycées (compared with 3 per cent in 1961) ;
- 42 per cent of university students taking science and technical subjects (compared with 34 per cent in 1961);

iv) structural educational reforms decided by the authorities may be promptly carried out or partly postponed, depending on practical possibilities ;**

v) qualitative improvements obviously have to be weighed against the rise in numbers which results from the various factors referred to above. This entails another basic choice in the educational plan : within the limit of the resources provided, should enrolment be increased as much as possible, or restricted to allow the existing teaching arrangements to be improved ? There are many answers to this question, but it may also be asked whether a child who deserves and wants education should be deprived of it so that others can be better taught.

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* A highly selective entrance examination for secondary education is one way to keep numbers down.

** It was not possible, for instance, to arrange, in the French Plan for 1962-65, for the full introduction of the *cycle d'observation* (for orientation purposes) provided for in the 1959 reform, contrary to the initial forecasts made by the Ministry of National Education.

Location of Schools and Universities and Regional Expansion

In France, responsibility for carrying out the educational plan is vested in the Ministry of National Education and its *Commissions académiques et nationales de la carte scolaire*, in liaison with the Department for l'*Aménagement du Territoire* (Regional Development). One of the main problems is deciding where schools and universities should be located. Policy on this problem is governed by various considerations :

The gradual constitution in all "educational sectors"* of educational facilities, as far as possible of the same pattern, with the object of progressively ironing out differences in enrolment rates from one region to the next (or even from one *canton* to another in the same *departement*) ;

The bringing into the various regions - by the suitable location of establishments providing occupational, technical, and scientific (including research) training - the human capital needed to carry out regional expansion programmes which represent the national economic plan at local level ;

Conversely, the promotion of vocational and technical training in emigration areas to ensure that labour moving to areas in course of industrialisation has already received some training.

CONCLUSION

In the short term (four or five years) the economic plan should help supply the educational system with the resources required for its development, not only because it trains the future labour force, but also in view of all the other factors (demographic, social, democratic, qualitative, etc.) referred to above.

Over such a short period, economic expansion will not reap the benefit of this new effort, which will, on the contrary, delay entry to the active population and perhaps even cut down productive investment.

In the medium and long-term, continued expansion of the national and regional economies will be secured as a result of earlier plans for educational development, through the addition to the active population of a "flow" of better educated young people, with improved professional training, who will gradually transform the intellectual and occupational pattern of the population.

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* Covering one or more *cantons* in a *Département* and sufficiently populated to justify the establishment of a standard network of secondary schools.

From this point of view, the development of the educational system is undoubtedly an investment. As an investment, however, it carries not only an economic return which economists endeavour to calculate, but also a return on every plane (cultural, social, family, democratic, etc.).

Such "investment" must be given a priviledged place in national development plans which are not only of economic importance but have objectives and results affecting every aspect of human society.

MANPOWER REQUIREMENTS AND EDUCATIONAL ORGANISATION

by

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INTRODUCTION

In contrast to the traditional view that the primary function of education is cultural, it is becoming increasingly clear that the strategically important responsibility of the educational system is to provide the work force with adequate skills and that this is as essential for economic growth as any other form of capital investment. This comes most sharply to the fore in a developing country, but is equally true even in the most highly developed countries.

The need to develop articulation between the manpower needs of the economy and the educational system has become increasingly urgent in recent years. As a result of a great expansion in research and development work, technological change has proceeded rapidly, altering the pattern of occupations and changing the content and skill requirements of each occupation. Thus future manpower requirements will almost certainly differ from those of today.

Since the process of planning and setting up educational producing graduates is lengthy, the necessary manpower skills must be determined well ahead of time. The educational system must have a programme looking well to the future and carefully directed to fulfil the manpower requirements of a growing economy. This careful programming becomes increasingly important when resources are scarce and their allocation to education competes with other forms of investment. A clear recognition of the relationship of education to economic growth and well formulated plans for the output of the skilled workers necessary should help in ensuring that the educational system is given adequate financial support.

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[*] The author wishes to acknowledge his indebtedness for many of the ideas in this paper to an earlier draft paper on the subject, prepared for the Study Group by Selma Mushkin.

Without ignoring the other important objectives of education, the fulfilment of manpower needs thus becomes an essential and recognised part of the role of the educational system. Since this function has only recently been stressed in many countries, the machinery for ascertaining the economy's manpower needs and using this information as the basis for formulating educational programmes is not yet adequately developed.

This view of the role of education gives rise to a relatively new phenomenon: the intervention of other government agencies in the development of educational plans and policies. The field which has always been the jealously guarded responsibility of educational authorities - and in some countries of independent privately-supported institutions - is now receiving attention from the ministry of labour, economic planning agencies and other groups. It is as if, to paraphrase Clemenceau, education had become too important to leave to the educators.

In this paper we shall examine the question: how best - with the educational traditions of each nation - can the information upon which to base educational programmes be obtained, and what relationships, if any, need to be established between the educational authorities and those responsible for manpower administration or economic planning in order to facilitate the development of such programmes.

WAYS IN WHICH THE EDUCATIONAL SYSTEM CONTRIBUTES TO MEETING MANPOWER REQUIREMENTS

The educational system contributes to the development of manpower skills in several ways:

General education

General education contributes to manpower development in subtle and pervasive ways. It is generally recognised that education contributes to the development of competence in learning and to adaptability, both of which help the worker not only to advance in his skill continually and keep up with changes in his field, but also to learn new skills and qualify for new occupations as necessity dictates. This general competence is derived from literacy and acquired skill in learning, and the necessary background in science, technology, mathematics, and other general tool skills or knowledge. Not so well recognised is the contribution of general education to the level of aspirations of the society, to the attitudes of workers towards their work, each other, their employers or employees, and their responsibilities to society. All these not only set the general social and ideological framework for manpower development, but also influence motivations and thus contribute to the development of skills.

Vocational oriented education

The service we most commonly think of as the educational system's contribution to skill development is vocational or professional education, and specifically vocational training.

Selection

As limited facilities often restrict the number of students, the educational system has to select students for admission to each type of educational institution, and thus, by implication, selects entrants to each occupation. The selection, which may be by examination, by review of the student's school record or by other means, should be based on criteria which are relevant to success not only in the educational programme concerned, but also ultimately in the field of work for which the education prepares.

Guidance

The educational system in many countries is also responsible for providing guidance to the individual in choosing a field of work for which to prepare and in choosing training courses. This guidance should take account of manpower needs and employment opportunities, as well as characteristics of each field of work and type of preparation in relation to the characteristics of the individual.

The educational services listed above should be provided not only for youth, but also for adults, who may need them to advance in their occupations or to transfer to new occupations. Such transfers may be imposed by the vicissitudes of the labour market and the impact of technological change, or by personal factors requiring job adjustment, such as physical impairment requiring vocational rehabilitation. In other words, the educational system, with the assistance of other agencies, if required, should provide lifetime education in accordance with changing manpower needs.

However, this need for flexibility imposes a particular burden on the educational system. Possibly the most widely accepted and universally ignored principle of education is that, like other institutions, it has its roots in the past, but, more than most institutions, it must bear its fruit in the future. This maxim is ignored because of rigidities in the educational institutions themselves, the difficulty of ascertaining the directions of economic change affecting manpower requirements, and the inadequacy of mechanisms to provide such information and ensure its use in making strategic educational decisions. However, consideration of the painfully slow response of educational programmes to economic change leads one to conclude that what is needed is not a mere arrangement for providing information but a mechanism for the continuous review and reconstruction of educational programmes in the light of economic trends.

This responsiveness to changing needs can result only from close contact between educational institutions and the society around them. The forms which this contact can most effectively take and the ways in which the essential knowledge can be infused into the educational system are the questions at issue.

KIND OF ECONOMIC INFORMATION NEEDED FOR EDUCATIONAL PROGRAMMES

In order to examine this question pertinently, we should be specific as to the kind of knowledge required, which may be listed as follows:

- The number of people to be educated, trained, or otherwise qualified for employment in each occupation or for each type of educational background per year and in each geographical area (insofar as geographical mobility of workers cannot be assumed). This is relevant to planning educational programmes in terms of the number of students for whom each type of course must be provided as well as to the tasks of selection and guidance. The specific number of persons to be trained for each occupation may be summarised at broader levels into totals for each type of education.

  These estimates may be the product of a programme of economic research, related to long-term planning or projection activities that may be undertaken in a country. Such research programmes will normally embrace analysis of population trends; trends in the character of the economy and in the general level of economic activity; changing patterns of expenditure and consumption; the markets for various products and services; technological changes; changes in the occupational patterns of the various economic sectors, and inflows and outflows from occupations resulting from educational and training activity on the one hand and from deaths, retirement, migration and occupational mobility on the other. Alternatively, or as a supplement to analytical economic studies, the information on occupational requirements of each industry has sometimes been obtained by surveys of employers; however, this method has been found of limited value because most employers have not made careful studies of the long-term outlook for their companies or industries.

  Programmes to provide such estimates have been conducted for some years by the ministry of labour in some countries (for example, the United States and Sweden) and by a central planning agency in others (for example, the Netherlands). In the United States extensive information on future employment opportunities in various occupations is published by the Department of Labor and by co-operating state agencies.

- The skill demands in each occupation and hence the content of education and training required for each. Occupational mobility is related to these. This information is relevant to the design of curricula and course content, the development of criteria for selection, and to the individual student.

This information may be obtained from employers, in terms of the qualifications they demand of their workers. It has been systematically collected in this way by public employment services in some countries, since it is essential for their operation. It may be collected by any other agency if the public employment services cannot provide it. Some educational institutions which find jobs for their graduates may be well informed; sometimes it comes to the educational system through industry advisory groups. Finally, some professional societies and trade unions are sources of such information. In the United States, the United Kingdom, and Canada, among others, such information is published extensively by the ministries of labour.

In examining the question of what agencies can most effectively take responsibility for various aspects of the total task, their competence in obtaining these two general types of information must be considered.

WAYS TO GET THE INFORMATION AND MAKE THE POLICY DECISIONS

There are a number of ways in which the information needed by the educational system can be obtained and the strategic decisions then made. This variety of means is illustrated by the following enumeration of methods, some of which are in use to some extent in one country or another. The enumeration is intended to be suggestive, but by no means exhaustive. In reviewing them one must remember that they are further complicated by other dimensions in the institutional organisation of education in various countries - methods may vary according to the level of education (elementary, secondary, higher), the sponsoring authority (public, private or religious), or the degree of centralisation or decentralisation of the system of education. Moreover, a viable system may resemble no single one of these, but two or more in combination.

The educational system itself takes full responsibility for determining the facts about economic trends and future manpower needs and the changing content of occupations, as well as for making decisions about necessary changes in the educational programmes. This can be done by employing competent professional staff in the educational system or by calling upon universities, economic research institutions, etc. In addition to carrying out economic studies, the educational system may set up advisory or consultant groups representing other government agencies, industry, trade unions, and professional societies. In the United States, for example, there is a long tradition of industry and labour advisory committees to local vocational education authorities.

The ministry concerned with manpower, usually the ministry of labour, takes responsibility for projections of manpower requirements and information on the skill requirements of occupations, and provides this information to the educational authorities. Labour ministries frequently have especially close interests in fact-finding and in administrative decisions in connection with programmes for retraining the unemployed or handicapped adult members of the work force. Advisory or consulting groups, such as those described above, could be set up to advise the ministry of labour.

An economic planning agency could take the responsibility for the projection of manpower requirements consistent with national economic plans and for informing the educational authorities of these needs. Advisory groups could be set up to assist the economic planning agency in this connection.

Professional societies, employers' organisations, or trade unions take the responsibility for projecting manpower requirements and for determining the skill requirements of the occupations in their fields. (In some countries the latter function is performed to some extent by the accrediting agencies of professional societies, which have considerable influence over the content of professional education owing to the important position of the accreditation procedure in determining standards of qualification for employment or licensing).

A system of joint responsibility of the educational system with one or more of the agencies listed above could be established. While joint studies and research might not be effective, policy decisions could be made in this way. The machinery for this purpose could be inter-agency committees at ministerial level, or a national manpower council on which the several agencies are represented, including the finance ministry. Such a central council or committee could have policy-making responsibility, not only for the planning of educational programmes but for other aspects of manpower programmes (e.g. military service, housing, employment service, migration, etc.). (Note that under this scheme the council has *policy-making* responsibilities; advisory responsibilities could be exercised by the advisory groups mentioned under the first three alternatives). It could be staffed by a structure of working groups for each occupational field and for various problems of a general nature, and the groups could be supported by adequate professional staff from each agency. Advisory groups from industry, unions, and professional societies could be added, either at the level of the council or of the working groups.

COMPETENCE OF THE VARIOUS AGENCIES

Each of the arrangements described above may have advantages and disadvantages, depending on the nature of the traditions and institutions in each country, and the strength of the various agencies involved. A broad generalisation cannot, therefore, be made but some of the following considerations as to the competence of each type of agency may be more or less valid in each country.

Educational authorities

Educational authorities are well placed to determine the various ways of producing people of various skill levels. They are knowledgeable about the feasibility of alternative lengths of training and often about the transferability of training from one occupation to another. They have a central responsibility regarding the types of resources required for any level of educational output - the school equipment needed, the number of teachers, size of classes, library and laboratory facilities. Moreover, they have a deep concern for the wider objectives of education which go with occupational training. Above all, the educational authorities must implement the programme, and their participation in its elaboration and agreement with its objectives are essential to ensure that the plans made are put into effect.

It would be unrealistic not to recognise that educational institutions often tend to persist in established patterns, for example, courses offered, their content, or the relative emphasis (in terms of staff, facilities, and enrolments) on various schools and programmes. Often such rigidity results from the establishment of separate institutions within the educational system in which teachers and administrators develop vested interests (as, for example, the agriculture vocational educational programme in the United States). Maintaining flexibility in these respects requires the utmost attention of central educational authorities who see the general interest as paramount and who have no commitment to specific areas of the total educational effort. Most educational systems have long recognised the need for teachers to keep up with changing knowledge in their field and with changing pedagogical techniques; perhaps retraining programmes similar to those established for workers whose employment opportunities are curtailed by technological change should also be developed for teaching personnel.

Manpower agencies

A manpower agency can make a significant contribution to this effort, particularly if it has a recognised responsibility for ensuring that the manpower needs of the economy are fulfilled. Manpower agencies administering a strong public employment service have intimate knowledge and experience of the current labour market situation, the demand for various occupations, their skill content and the extent of transferability among them. Manpower agencies responsible for economic statistics in the field of employment may have special competence in analysing the trends and outlook in each industry and occupation.

However, manpower agencies or economic ministries concerned with meeting manpower needs sometimes tend to press educational authorities to develop crash programmes to meet suddenly-rising labour shortages and to avoid production bottlenecks. This tends to create instability and chaos in educational programmes and must be avoided by better advance planning, or at least confined to a limited number of real emergencies.

Economic planning agencies

Central planning agencies are in a position to contribute to the calculation of estimates of manpower requirements associated with economic projections, or with the stated economic goals of the country. In general, they have no particular knowledge of the content of occupations, or of occupational mobility.

Industry, unions, professional societies

These agencies have intimate knowledge of the occupations with which they are concerned, of the skills and knowledges needed, of the transferability of skills among occupations, the types of persons who make good workers, etc. While they may have no special competence for assessing future employment needs (unless they are engaged in systematic, long-term projections), they have much knowledge of matters such as technical and market trends which affect employment, and they can contribute to an evaluation of future employment needs.

On the other hand, they often have occupational biases. In some cases organisations have a natural hesitation to over-crowd their fields; this economic interest is often associated with the desire to maintain or raise standards of competence and of training. This concern should be given serious consideration by other groups in the community, as the interests of those whose lives are dedicated to a field of work cannot be casually over-ridden, but must be tempered with a broad social viewpoint.

In contrast, organisations of employers have an interest in an adequate supply of manpower which, if pushed to excess, could become a device for lowering wages. They may also sometimes favour limited and narrow vocational training in order to keep down its cost. However, employer groups have become increasingly aware that greater adaptability of workers to technological change, which is enhanced by broader vocational preparation, not only contributes to flexibility in the economy but may also in the long run reduce social costs.

These organisational biases must be taken into account when setting up the machinery for the formulation of education policies.

PRINCIPLES FOR DEVISING MACHINERY TO ENSURE THAT EDUCATION MEETS MANPOWER NEEDS

The intricate patterns of government organisations and the relationship between overall programming on the one hand and responsibility and authority for programme implementation on the other vary considerably from country to country. At one extreme there are countries with no overall planning body for education, and highly decentralised education; at the other, countries with well-developed planning bodies and centralised responsibility for the implementation of educational programmes formulated on a national basis. It is clear that a variety of patterns must be developed if each nation is to evolve occupational relationships consonant with its organisation of responsibilities for education, manpower, and other economic policy and with its customs and traditions.

Concern about the dangers of political control of education has led some countries to establish institutions to safeguard the independence of the public education system, and particularly private or religious education. These concerns are more relevant to general than to vocational education, and even in countries where the line is drawn most sharply, a greater degree of government involvement is accepted for vocational education - in financing, setting standards, and deciding which programmes should be emphasised. The same is often true where traditionally the responsibility for education is allocated mainly to local government agencies. Increased involvement of manpower authorities *vis-à-vis* educational authorities, and of central *vis-à-vis* local government agencies, arises particularly with respect to the vocational aspects of education because of the need for ensuring economic growth as a matter of national policy. In addition, the need for rapid expansion of the resources allocated to education creates greater dependence on the financial resources of governments, and of central governments in particular.

The complex question of who does what within a governmental structure in formulating and implementing programmes necessarily requires a national decision. Only some very general principles may be suggested as a guide to these decisions.

1. Participation should be determined by responsibilities

The primary responsibilities of agencies in relation to the tasks to be carried out must be considered. Just as the educational authorities, in view of their primary responsibility for the administration of educational programmes, should play an important part, so the authorities responsible for ensuring economic growth, maintaining an effective labour market mechanism, and conducting essential economic research must be given appropriate weight in creating the organisational relationships, not forgetting the responsibility of the ministry of finance. Policies determined by a single agency, or even joint recommendations of several, will not ensure implementation unless they are accepted and supported by the highest national authorities - the chief executive and the legislature.

2. Interplay among agencies in policy formulation

A relationship between the educational and other government authorities concerned is needed which does more than provide for a one-way flow of information from the economy through some government authority to the educational system. In fact, there should be a constant interplay between educational and other government authorities in determining goals and policies. This interplay is necessary because estimates of the numbers of workers to be trained for each occupation to meet future manpower needs, or the kind of education they will need, are not independent of other policy decisions and programmes in manpower administration. For example, a large anticipated increase in manpower needs for a certain occupation may be dealt with otherwise than by expanding the output of educational institutions, for instance by changing industrial practices of personnel utilisation (e.g. if there is a shortage of engineers, technicians could perform some of their work). All the alternative or complementary measures to provide adequate manpower should be considered, particularly if no one measure will easily solve the problem. Moreover, the adoption of certain alternatives may imply changes in educational activities ; for example, the decision to utilise technicians as a substitute for engineers would mean training more technicians. This necessary interplay between educational and other government authorities in planning may prevent a great effort by one sector being wasted as a result of lack of co-ordinated policies in another sector.

3. Continuity

The machinery for relations between educational and other government agencies should provide for continuity. Continuous development and revision of programmes are essential for a number of reasons:

> Current projections of manpower needs are far from perfect and, in any event, many economic changes are unforeseeable; targets must, therefore, be continuously reviewed and often revised.
>
> Scientific and technological progress changes not only the number of workers required in each occupation, but also the educational content required.
>
> The changing availability of resources, an important component of any educational plan, requires continual re-evaluation of programmes in the light of changing needs, and often the establishment of new allocations of funds.

For these reasons, the organisational relationships set up should be based on permanent organs of government and should operate continuously. The teams being set up under the auspices of OECD in some countries can make great contributions to initiating appropriate plans and to reorienting educational objectives to encompass economic motivations, but this work must be taken over on a continuous basis by permanent organisations.

4. A single planning activity for education as a whole

While much of the educational system's work is not directly related to preparation for occupations, the planning activity should cover the whole system. Many of the decisions as to what can be done at higher levels depend on what has been done earlier, i.e. what students have already learned, how many of them move on to higher levels, etc. The concern of the planning activity with the lower levels of the system will usually be extremely limited, but on some essential points it may be crucial, and it should not be barred by a restriction of its scope to only a part of the educational system.

5. Use of advisory groups and of the agencies' own professional staffs

The agencies given responsibility must have strong research and professional staffs in the field of economics and, where relevant, psychology and sociology, and the ministry of education should have at least a nucleus of competent professionals in these fields to maintain an effective liaison with manpower and economic planning agencies.

Experience suggests that many advantages are to be gained by using advisory groups from industry, unions, and professional societies not only to benefit from their knowledge but also to gain their acceptance of the educational programmes developed and acceptance of the personnel trained under these programmes.

However, advisory groups cannot be effectively used to the exclusion of professional staff in the agencies. The latter are needed to sift facts from arguments and to provide an analytical framework which can be filled out with the knowledge possessed by advisory groups.

6. Early involvement of implementing agencies in decision-making

The agencies concerned with direct implementation of a programme must become involved in the process of planning at an early stage so that the objectives are understood and accepted, differences in points of view fully aired and considered, and practical problems in implementation can be taken into account in the formulation of a workable plan.

7. Devising checks and offsets to institutional biases

Whatever arrangement is developed should be so devised that it provides checks and offsets to the various types of institutional rigidities and biases mentioned above. One plan would be to develop institutions around broad rather than narrow forms of education; in this way, if a particular area becomes less important, the individuals involved will not feel that their careers are threatened, as their commitment is to a broader area. Similarly, the biases of trade unions, professional societies and employer groups may offset one another if they participate jointly with the government agencies concerned in recommendations on policy.

8. Public discussion

The widest possible public discussion must be achieved in order to gain acceptance for new programmes which depart from traditional ones. This will be particularly helpful where large new financial outlays are required.

9. Evaluation of results

Systematic and continuous attention should be given to the measurement and evaluation of the effectiveness of educational programmes to prepare workers for occupations. Studies should be made at frequent intervals of the employment experience of persons completing the various educational programmes. Such studies should cover their success in finding employment in the field of their choice and in adapting to changes in the labour market, and the effectiveness of the education they have received in preparing them for work in the occupation. Whether such studies are conducted by the ministry of labour or by educational authorities, the participation of both in at least an advisory capacity is essential, and it is particularly important that the educational authorities at the highest levels take an interest in such studies as a means of evaluating the effectiveness of the various sectors of the educational system.

CONCLUSION

It will be apparent from the above that no single system of planning education to meet manpower requirements is recommended as being superior to others. One good reason for this is that there is not enough experience with any system to determine how well it works over a period of time and in solving a wide variety of problems. Another good reason, mentioned above, is the diversity of institutions and traditions between countries.

One may view organisational relationships among agencies in this area as a continuum; at one end would be a system of rather distant relationships characterised by exchange of information; in the middle, a system of mutual consultation informally or through advisory committees; and, at the other end of the continuum, a single policy-making body in which a number of agencies are represented. The most common situation in the past has been closer to the first of these systems ; the urgencies of the present argue for a movement toward the second; and whether or not the third is desirable or practicable depends on circumstances and experience.

RESOURCE REQUIREMENTS AND EDUCATIONAL OBSOLESCENCE

by

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One of the most striking failings of our educational system is that it seems unable to adjust to changing circumstances. Scientific and technological progress has altered the educational requirements of society. More people trained in new skills, and a deepened capacity for scientific research are widely recognised as prime requisites for economic progress. In response to these needs, the following notions are gaining acceptance: that educational systems are concerned not only with transmitting a cultural tradition and pushing forward the frontiers of knowledge, but also with producing the professional and technical "know-know" required by a dynamic society; that the skills of the working force are a resource to be explored and developed through education; that if investment in education is to yield appropriate results then primary and secondary schools and universities must have a programme directed toward achieving the necessary work capacity and scientific research potential.

The main emphasis has been placed, however, on expanding and improving the quality of educational opportunities for young people in the school systems (and this emphasis defines the present scope of consideration of educational expenditure requirements).

But the demand for professionally and technically trained manpower and for accelerated scientific innovation requires more than concentrating on the younger generation. While countries face the problem of mounting expenditures for more and better education for the young, they

AUTHOR'S NOTE: This paper was written in the Spring of 1963 and, therefore, does not reflect subsequent legislation such as the enactment in the United States of the Economic Opportunity Act of 1965.

must also meet the even more complex educational challenge of raising the productive capacities and skills of people already working, and of creating an environment which would facilitate the exchange of research questions and of competencies between academic communities and industry. The challenge is great and the possible paths toward a solution not well defined. Recognition of the need for a comprehensive programme which would provide an institutional arrangement for re-educating those in the labour force would be a first step towards meeting this challenge.

Educational budgets are now making unprecedented claims on available resources. Many nations will have to expand the share of a rising national product which is devoted to education in order to cope with both larger numbers and enhanced quality, and customary methods of determining resource requirements and of financing will have to be changed. Discussions of resource allocation and of financing education must be broadened to include an additional vital segment of educational requirements, namely, the groups who completed their formal schooling years earlier and are already in the labour force.

The present paper is intended to show why an institutional arrangement to meet these additional requirements is vital, and to offer a proposal for the financing of such an arrangement.

NEED FOR A COMPREHENSIVE EDUCATIONAL PROGRAMM

Accelerated scientific progress, new technology and new products are transforming both the structure of the work force - its composition by industry, occupation, and demographic characteristics - and the content of specific occupations. In broad outlines, the movement in the United States is towards a white-collar, service-producing, professionally orientated work force with an increasing proportion of women participants, and away from unskilled occupations and farming. Stepped-up research may be projected into a continuation and even an acceleration of historical work force trends, with further productivity advances, and a further release of manpower for service-producing, rather than goods-producing activities. Concomitantly, problems associated with structural changes in the work force are intensified and stimulate policies and programmes to meet the social cost of such changes as technological displacement, unemployment among the unskilled, and further concentration of people in metropolitan areas.

The content of specific occupations is also changing. Much of the knowledge and skill acquired through formal schooling and on-the-job training is being made obsolete by new tools, methodology, and techniques. The pace of these changes may be expected to quicken as a consequence of the heightened interest in scientific research.

These transformations in the structure of the work force and in the content of occupations, in turn, create problems of *(a)* technological displacement, *(b)* effective use of womanpower, *(c)* upgrading of unskilled workers, and *(d)* retraining for effective professional performance.

Technological displacement

Since the beginning of the industrial revolution, new techniques for producing and distributing goods have resulted in worker displacement. In one sense, this displacement compelled the movement from one employment to another, a movement that facilitated industrial progress. The essential difference between the earlier problems of displacement and those that we now face stems from the up-grading in overall level of skills which is taking place simultaneously. Re-employment of unskilled workers at lower skill levels tends to be blocked by the general structural movement toward higher technical and professional skills. Thus the acquisition of new competence for employment also involves raising the individual's work capacity. The processes of individual development are essentially educational ones and thus the task of retraining for vocational purposes becomes a question of education.

Various measures have been initiated to create new employment opportunities for those displaced by technological change and to retrain the unemployed for new occupations. In the United States, for example, as part of the area development assistance programmes adopted in 1961, loans and other aids are made available to areas with high unemployment to stimulate industrial development, and educational services are provided to train the unemployed in skills needed by new industries and occupations in which workers are in short supply. Subsistence allowances for a period of up to 16 weeks are paid to the unemployed during training. The Manpower Development and Training Act of 1962 broadened the concepts underlying the earlier training provisions by removing the area limitation, and by authorising training and living allowances for a period of up to 52 weeks, and the payment of transportation allowances where necessary. These are viewed primarily as experimental programmes, in order to determine the potential of retraining as a method of labour force adjustment.

Sweden's retraining programme for displaced workers is far larger relative to its labour force than the programmes in the United States and has a far longer history. In Sweden, the retraining goal is now set at one per cent of the labour force and covers both unemployed and women who are re-entering the labour force. Allowances are provided during the training both for the trainee and for his dependents, and vary in amount according to size of family and housing costs; in general, however, allowances are fixed below the average wage of an unskilled labourer. In Sweden, emphasis is placed not only on occupational mobility through creating new skills, but also on geographic mobility. Travel allowances to cover the costs of maintaining two households during an intermediary period for workers moving from areas of high unemployment to areas of labour shortages. These measures are backed up by employment and vocational guidance services.

Effective use of womanpower

New techniques for performing household tasks release women from work at home for active participation in the labour force. In the United States, more than one-third of all women of working age are in the labour force. The rate of labour force participation is highest for single women and lowest for mothers with young children. The general pattern of labour force participation is employment immediately after leaving school until marriage or birth of the first child, and re-entry when the children are of school age or complete their schooling.

Women, when re-entering the labour force, are handicapped by lack of recent work experience, but even more so by the scientific advances which make their former skills less adaptable to the working environment they re-enter. The professional trained woman returns to the labour force with perhaps the greatest disadvantages. Obsolescence in knowledge during the period she was at home often prevents a return to tasks for which she was initially trained. Data on earnings for women reflect the toll in loss of work capacity taken by the movement between home and job. Part-time and intermittent employment of women is one of the consequences of the frustrations many of these women fell at working at levels and on tasks they consider below their full work capacity. While opportunities for part–time employment are essential to attract working mothers into the labour market, many women who would work full-time fail to do so because the tasks on which they can engage are not sufficiently challenging.

The work competency of women is a resource which could be applied to furthering economic progress within a relatively short period of time. Referring again to the United States, the stock of women college graduates has been used in the last decade to help meet the urgent need for elementary and secondary school teachers. With some retraining, or training in educational methods, these women were encouraged to return to the labour market and take up tasks as teachers. The success of this effort is indicated by the fact that despite the very rapid increase in school enrolments, class size declined somewhat and the proportion of unqualified teachers fell during a period when the number of newly trained young teachers was hardly adequate to meet the need.

There are also reserves of other talent, e.g. women trained for some years before their marriage as mathematicians, chemists, bacteriologists, and even as engineers.

In general terms, for each three women who receive a professional education, the equivalent of one full-time worker is gained. The creation of an institutional structure to permit women to retrain for employment at the time they seek to return to the work force is certainly one way of effectively recouping part of the cost of their trainers.

The problem of providing a way for women to be retrained, based on earlier formal education and job experience, has been intensified by the pattern of early marriage since World War II. Women - their families grown - will be returning to the labour market at a fairly early age. The choice lies between effectively using this potential resource of skills by expanding educational budgets to permit the training required, or allowing a part of the nation's brainpower to go to waste.

Upgrading unskilled workers

Technological progress also markedly alters the opportunity for employment of the unskilled, often poorly educated, worker. It is a striking characteristic of current economic developments in the United States that even as shortages grow in professional and technical employments there is increasing unemployment among the unskilled. Past educational neglect, caused either by low motivation at an early age or inadequate school facilities, swell the numbers seeking unskilled jobs. As a result of migrations from rural to urban areas, the burden of support of these unemployed is thrown on the cities where, in a variety of ways, the personal and family problems associated with little education and low income are intensified by the complexities of metropolitan living.

Efforts to remedy this situation on national, state and local level in the United States, however, have been fragmented. Social assistance programmes have been amended to include services seeking to prevent public dependency, of which education is necessarily an important part. Vocational and technical education programmes have been expanded and further extensions are urged. A new programme of basic adult education in the school systems is proposed. In co-operation with industry, the national government is encouraging on-the-job training, health agencies are directing their attention to basic health instruction, and housing authorities are orientating their programmes to give some training in the fundamentals of urban living.

These efforts suffer not only from their fragmentation in coping with a general problem of educational deficiency, but from the more fundamental defect that the low income groups are set apart from the rest of the population. There is reason to believe that a comprehensive educational programme for all persons of working age would provide a better stimulus for participation and, by its scope, spur the educational authorities to set aside traditional approaches and to devise a programme in keeping with the realities of the specific population groups and their problems in living and working in metropolitan areas.

The process of upgrading the working and living capacities of the poorly educated unskilled worker would perhaps yield as a by-product higher educational aspirations for his children and a better understanding of the conditions and motivations required for their schooling. An unskilled worker who is encouraged to take up a course of training and finds this not only a satisfying personal experience but also a path to income improvement may alter his expectations for his children; he may become less prone to encourage his children to leave school for work. Thus, an educational programme for parents may break the cumulative chain of illiteracy and poverty.

Retraining for effective professional performance

At the one extreme of the occupational ladder, demand for unskilled work energy is narrowing, at the other, new knowledge is altering the content of many professional occupations in which there are critical shortages. The rate of obsolescence is not even, but breakthroughs in important scientific areas drastically change the direction of many disciplines, and new findings and methods alter the nature of professional practice. The content of physics has been extended, e.g. nuclear physics, plasma physics, semi-conductor physics; the content of biology has changed with the discoveries of D.N.A. and R.N.A., and of astronomy by place elaboration, and so forth. Moreover, links have been forged between the sciences by new techniques such as the use of radioisotopes.

Technological advances have also had their impact on the methods of professional practice. New therapeutic agents and procedures have altered the practice of medicine. The technology of medical diagnosis has expanded doctors' capacity to assess disease problems and antibiotics have provided specifics against a number of diseases that earlier required days of doctors' time, and weeks of hospital services. Computers have opened new paths for systematic investigation in many scientific fields; even the practice of law is being affected by the use of computers in problems of legal research.

The rapidity of progress has widened the variation in capability of professional persons both to build upon new knowledge and to apply new technology to the solution of problems. While keeping abreast of more recent scientific developments has always been recognised as an important part of professional performance, this task becomes extremely difficult and time-consuming for the specialist when the rate of progress is rapid. An added complication is that many new advances emerge as interdisciplinary research findings. It has been stated that a chemical engineer would have to spend at least 40 per cent of his working time just to keep abreast of the new literature relevant to his special field.

One consequence of these changes is the greatly increased demand for young, well-trained scientists and engineers. Starting salaries have risen, narrowing the differences in earnings between new entrants and those with years of experience.

A number of steps have been taken or are proposed for short-term refresher courses, informal work-shops on specific subjects, in-service training programmes, etc. In medicine, regional programmes centered in medical colleges have been launched to provide a two-way flow of training. Young physicians-in-training work in professional offices in rural areas learning the problems of the practitioners, and practitioners learn of recent developments in medicine both through the young physicians and the medical colleges. Industrial firms have established both intermural and extramural training programmes for their employees. The need for such programmes is widely recognised but only partially met.

One road to improvement is to bring into the university programmes scientists from industry and government, with knowledge of recent scientific advances.

Need for university-industry communication

Scientific and technological progress influences the characteristics of the labour force and the educational content needed for effective occupational performance. In order to mitigate the hardships caused by shifts in labour force structure and at the same time to create the new skills required for acceleration of this progress, resources must be devoted to re-education and to raising the skill levels of the working population.

Broadening the scope of educational efforts to upgrade and retrain is one side of the educational problem. Another is deepening the research potential on which further progress depends.

The success of organised research efforts has opened the way to additional support of research by government, industry, and private foundations. It is increasingly recognised that further economic advance in developed nations depends upon new products and new techniques of production. The expansion of research now creates a new problem of communication and education.

Historically universities have played a major role in scientific advances. Their highly trained faculties, the association of people of different disciplines, and the stimulation of young inquiring minds, allied to their tradition of investigating the unknown, places universities in a position of predominance.

With increased funds, university research efforts have grown considerably. At the same time, however, industrial and governmental research laboratories have been established or expanded, and, in some fields, leadership in scientific advances no longer lies clearly in the university. But the processes of expansion of knowledge through research and of teaching are combined in universities and there is an established machinery for communication among faculties. In the non-university-based laboratory the machinery for a flow of information into teaching and to others in the profession has to be created anew. The central problem is thus to establish a two-way flow of communication between university and non-university research centres.

Efforts are being made to solve this problem by asking research scientists from government or industrial laboratories to teach at universities. Other practices help to build a link between the university and non-university scientist, for example: more or less formal exchanges of personnel between universities and non-university laboratories; vacation jobs in government and industries are made available to university students; co-operative groups of university scientists are set up by non-university laboratories, and consultants from universities are called in to help with the design and execution of industrial research projects; government and industry finance training programmes for their employees; meetings of professional groups are organised to exchange new ideas and to disseminate new findings.

Through the above and other methods, knowledge of scientific advances is transmitted between university and non-university laboratories. New research questions are brought to the attention of university scientists as they arise. Moreover, through this type of exchange, universities acquire a better notion of the staffing patterns of industry and government and the specialised skills and competencies these agencies need to carry out their research mission.

There are a variety of educational problems relating to working scientists and others in the active labour force. The following are some of the measures taken to solve these problems:

> short refresher courses for persons in selected professions, e.g. physicians, engineers, dentists; professional society conferences and preparation of books for professional use which synthesize new knowledge with the old; exchange programmes between university departments and practitioners and scientists in industry and government; extramural training programmes for selected professional and scientific employees of industry and government; in-service training programmes in firms, sometimes in co-operation with colleges and universities; adult education evening and summer institute courses; summer and part-time employment opportunities for students; retraining programmes for the unemployed and physically handicapped.

Even this summary of measures suggests the general characteristics of remedies to obsolescence of knowledge and training, namely, *(a)* educational programmes restricted to small population groups, *(b)* short-term education which does not interfere with active participation in the labour force, *(c)* mostly "hit and run" education in that some new knowledge is transmitted without taking into account the total dimensions of obsolescence.

In the same way as traditional educational processes require a systematic course of study, so a new process of education for adults working in a changing scientific and technological environment must be systematically designed. Such a programme cannot simply use the educational facilities and study materials developed for young people, but new and imaginative approaches to education must be found and a new range of educational facilities and services created.

Moreover, unless some means are provided to ensure an income to the individual and his family while he "goes to school", retraining efforts will be restricted to small numbers, be of very short duration, or be confined to those who have already felt the impact of technological progress by loss of employment.

THE OUTLINES OF A PROPOSAL

By combining familiar devices, an institutional structure could be established which would help to solve the several problems of re-education and also establish a link between university and non-university research scientists.

In broad outlines, what is proposed is an extension of sabbatical leaves - to which members of university faculties are entitled in some countries and all teachers in one nation - to all groups in the working population. Under this plan, persons of 35 years of age or over would be eligible for an educational allowance for a period of up to one year during which they would leave their regular employment and enrol in a full-time study course at an accredited institution. The cost, unlike conventional sabbatical leave, would not be borne by the employing institution, but would be financed as a social security benefit. Thus the social security concept would be extended to protect individuals and their families against the risk of educational obsolescence by maintaining incomes during a period of retraining.

Social security policies were largely developed as reform measures to provide cash payments to those who incurred certain economic risks against which there had previously been no safeguard, such as old age, widowhood, unemployment, and ill health. Up to now, little recognition has been given to the risk of educational obsolescence, and, where given in social security programmes, has been limited in scope. A type of "stick" has been invented - in part because of the financial drains on social security funds - by making retraining a condition for eligibility for unemployment insurance payments. Similarly, disabled people who are capable of vocational rehabilitation are required to retrain as a condition for disability benefits. These coercive provisions in social security programmes appear to be of doubtful value, since the effectiveness of education largely depends on the motivation of the individual. Courses of study can be pursued effectively only if an individual wants to follow them and recognises their usefulness to himself.

Financing an educational allowance system within the social security framework would imply different methods of cost-sharing in different nations. While there is much merit in integrating a programme of benefits against the risk of educational obsolescence into the general financial pattern of social security systems, an equal sharing of the costs between employers, employees, and the taxpayer would be more consistent with the burdens resulting from educational obsolescence and the benefits to be gained from its elimination. Individuals, employers and governments would each gain. Not only would national manpower resources be developed more fully, but the social costs of alleviating unemployment and poverty would be lower.

We propose that a sum at least equivalent to 1.5 per cent of annual earnings be devoted to the payment of educational allowances, with individuals contributing 0.5 per cent of their annual income, employers 0.5 per cent of their payrolls, and the government a share equal to that of each of the other contributing groups. For the United States this would represent an annual sum of about 5 billion dollars which, assuming the average level of income maintenance to be about 5,000 dollars, would permit the retraining of one million persons of working age each year.

One million adults, at school, full time, pose a new challenge to the educational community. New teaching methods, equipment, and facilities would be needed. Individuals attracted back to "school" to refresh their skills would vary so widely in educational background and employment qualifications that a single uniform system of education would be most unlikely to prove effective. The pattern and content of the training would have to be tested and altered in the light of changing circumstances.

The educational tasks involved, however, are not entirely novel. There has been some experimentation with intensive adult training, and some experience has been acquired in building programmes on the previous work experience of participants. Agricultural education, closely linked to agricultural colleges and agricultural experimental stations, and also linked to day-to-day practices through the work of the county agent, with the farmer and his wife, provides a pattern of co-ordinated machinery for the education of young people, for research, and for training those actively employed. While such a pattern cannot be easily adapted to education in urban areas, the principle of linking education with re-education and research is of great relevance.

Universities have a major role to play in any comprehensive programme of education for those in the working age groups. Their active participation in the development of the new structure of education and in the execution of such a programme would ensure that fundamental thinking will be done on educational offerings and that new knowledge, including knowledge about the learning process itself, will be applied in the programme design and course content. Responsibility also falls essentially on the universities for breaking ground in the effective utilisation, during the educational process, of the competence of the men and women who come for refresher education with an understanding of new research questions and findings, and with experience which highlights industrial requirements for occupational skills. But university leadership can be effective only if it is supported by a close partnership between university, industry, and adult educational authorities in setting programme standards and operational methods.

For purposes of illustrating the size of the additional resources required, let us assume that rather more than the average cost of higher education per student would be needed, say, at United States levels, 1,000 dollars a year per person, making a total of one billion dollars expenditure for the estimated one million participants each year. This would represent approximately less than one-third of current outlays by colleges and universities in the United States and less than 5 per cent of total educational outlays.

However, not all of this one billion dollars need be additional to the five billion dollar outlay for education. For example, at one extreme, educational benefits might be fixed to compensate eligible individuals for the full loss of earnings while attending school but render them liable for all (or nearly all) the direct costs of education through tuition charges. At the other extreme, educational benefits might be fixed at less than total earnings, for example, two-thirds of earnings, and education would then be free.

Obviously, costs are not the exclusive consideration in determining levels of charges and of educational allowances. The effectiveness of an educational programme for people of working age depends principally on the motivation of the individual and his incentive to raise his productive capacity. As a minimum, educational allowances must be sufficient in amount to remove financial barriers to further education, and charges for education must not make so large a claim on family financial resources as to be a deterrent.

However, more than financial support is needed to achieve the objectives. Reluctance to go into training is likely to be a potent restrictive factor in many cases, especially for workers with little formal education and those in the older age groups. Re-education calls for a radical break in a working life and in the routines and associations of daily employment. Only by the substitution of an intensive regime of study and of new personal relationships can the break be mended. A programme of refresher training, in order to be attractive, must not only offer prospects of personal betterment, but provide a reasonable substitute for the daily demands and satisfactions of employment.

Motivation rests on more than personal advantage. It can be generated through imaginative national publicity identifying re-education with national objectives such as economic growth and a higher standard of living. As a concomitant, information and counselling services are needed to direct individuals into the right channels; other supports, such as the guarantee of a job on completion of training and an efficient employment agency are also required.

Detailed specifications for any plan of operation must be tailored to general educational and manpower policies, but some items requiring programme choices can be indicated:

> *eligibility conditions:* age of entry; proof of genuine intentions; limitations in employment during period of eligibility, freedom of choice of course of study, period of eligibility for benefits; priorities when funds are insufficient, etc.
>
> *accreditation:* conditions of accreditation of institutions and of study programmes; criteria for adequacy of facilities; requirements for co-operative arrangements with industry.
>
> *scale of benefits:* size, methods, and time of payments; special provisions, if any, for those with no prior record of earnings; maximum and minimum benefits.
>
> *availability of educational resources:* location of specialised educational facilities, use of existing facilities, regional pooling of facilities, transportation arrangements, etc.
>
> *administration:* designation of agency responsibilities for determining eligibility of individuals, educational programmes and administration of funds.
>
> *inter-programme co-ordination:* relationships with existing adult education programmes, with general educational institutions, with in-service training programmes, and with other labour and welfare programmes.
>
> *financing:* size of the programme, methods of financing *(a)* allowances, and *(b)* educational services (who pays, how much, for what, and under what conditions).

It is certainly not our purpose here to spell out the details of a programme. It seems clear, however, that reasonable choices can be made which would permit the development of a workable plan fo re-education as a protection against educational obsolescence. The three essentials are outlined, namely, *(a)* full-time retraining, *(b)* income maintenance during retraining, and *(c)* the development of a suitable educational programme with supporting services to facilitate and encourage persons of working age to return to "school". For such a plan to work, its objectives must be widely understood, the role of the individual in attaining these objectives must be clear, the means for action must be available, and a yield to the individual must be assured.

If such a plan requires additional resources for education, it must be recognised that not all of the costs are new. Unemployment and under-employment take a large toll in wasted human capacity. In modern society individual deprivation is no longer an acceptable way of dealing with the hardships caused by such waste. At least part of the costs of unemployment, low income, and premature pensions borne by social security and other welfare programmes could be saved by re-education schemes.

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SOME REFLECTIONS ON CENTRALIZATION VERSUS DECENTRALIZATION IN EDUCATION

by

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If education is regarded as an article of current consumption or as investment in a durable consumption asset, the educational system can be viewed as providing goods and services just like any other producer. It may then be argued that the aim of the system is to maximize consumers' satisfaction, and that this aim can best be fulfilled by the mechanism of the free market. If consumers know what they want to gain from education and are able, by comparing its cost with that of other goods or services, to express their preference, then an educational system based on private initiative and the profit motive would adequately satisfy the consumers' need for education. True, an unequal distribution of incomes would make for an unequal consumption of educational services, but such distortions could be put right by means of taxation and subsidies.

The fact remains, nevertheless, that even in the countries most addicted to "laissez-faire", education has not been left to the forces of the free market. However, in many countries there exists more or less important educational sector-language schools, commercial courses, schools for car drivers, music and dancing schools – which is largely based on private enterprise and the profit motive. Moreover, secondary and higher education in some countries are partly provided by private institutions ; the English "public schools" and the American autonomous universities come at once to mind, but there is no evidence that they are profitable ; on the contrary, everything points to the fact that motives other than profitability have governed their establishment and their operation. Then there is the growing type of education given in the larger enterprises – courses of short or long duration to train young recruits, and also training of employees for careers. Usually the main reason for this kind of education is the improvement of the labour force and the building up of an adequate manpower reserve, but sometimes motives such as the fostering of loyalty to the enterprise may have equal weight.

Little information is generally available on the private educational sector, and more data on this subject would not only make comparisons with the educational systems of centrally planned economies more meaningful, but might also give some valuable guide-lines for educational policy in general.

THE CASE FOR DECENTRALIZATION

The historical causes which gave rise to governmental intrusion into education vary from country to country and from culture to culture. Education is so much a part of political and social ideals and religious beliefs that the mix of centralization and decentralization in the educational systems of most countries may be said to have been largely determined by political, social and religious factors. The absence of a precise and well-defined goal of educational policy in many Western countries may explain why there is so little rational discussion on which aspects of education should preferably be the province of a central agency (such as the ministry of education) and which aspects may suitably be left to local authorities and private bodies. True, developing the individual abilities and aptitudes of children has been the expressed purpose of education in many countries, but this ideal is too vague and ambiguous to be translated into a coherent policy. Moreover, educators and other interested parties usually have a bias towards decentralization, arguing that the responsibility for education should largely devolve upon local communities or the schools, which are the basic units of "production". Some educators have even argued that, by its very nature, the educational process is decentralized, as it takes place through intimate contact between teacher and pupil, and as the qualifications and dedication of the teacher are of decisive importance for the quality of education.

It should be pointed out that those who favour decentralization do not ignore the factors which militate in favour of a degree of centralization. Their argumentation runs along the following lines .*

> Some planning must be done, and for this purpose data have to be assembled on such features as school attendance, expected increases in the number of pupils of various age groups and in the rate of enrolment, etc. Though this task must be performed by a central authority, the quality of the performance depends on the accuracy of the information furnished by the individual schools.

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* See Howard Hayden (UNESCO), author of Section A, Educational Administration in *Decentralization for National and Local Government* pp. 90 - 119, United Nations, New-York, 1962.

Even though finance for the construction of school buildings and teachers' salaries and pensions must be provided to a large extent by the central authority, some delegation of authority to local government is unavoidable; it is also hoped that local communities will shoulder part of the cost of education and thus assume greater responsibilities in this sphere.

Central decision-making may be required as far as location, cost, construction methods, design and functional requirements of school buildings are concerned, but the local community will be consulted in these matters and have some say in the type of school it is going to have.

Though there are undoubted advantages in bulk purchasing of furnishings, textbooks and school supplies in general, some flexibility must be allowed and the school staff should have the possibility of choosing between different kinds of supplies.

Teachers' qualifications and conditions of service, recruitment promotion, etc. must be specified by a central agency for the whole country, and a centralized inspection service is needed to supervise the system, but this supervision should aim at stimulating better teaching rather than enforcing strict adherence to regulations.

Though standards of examinations and tests should be established by a central authority, school programmes should largely be left to the local school staff.

Local communities should shoulder the primary responsibility for the education of retarded or handicapped children, for welfare activities such as meals, medical services, libraries, for vocational guidance and for the whole complex of adult education, though the central government, by subsidizing these activities, might exercise some measure of supervision.

Research on the learning and teaching process and on the suitability of textbooks is the task of central authorities, but this task can be performed satisfactorily only in close co-operation with the teachers themselves and with psychological, pedagogic and other interested institutions.

In short, the child as an individual is uppermost in the minds of those who favour decentralization; in their view, the educational system should be closely tied to the environment in which the child lives, a few would quarrel with many of their ideals.

THE CASE AGAINST DECENTRALIZATION

From the practical point of view, however, a highly decentralized system clearly does not appear as the best solution. If there are too many school districts providing schools for a limited number of pupils - as is the case in the United States - the educational system is not efficient.[*] Efficiency requires school districts with a population sufficient to provide minimum numbers of pupils for their primary and secondary schools. If districts are too dependent on local taxes for the erection and maintenance of their schools, great differences in standards of education are bound to arise between rich and poor areas. This is what happens in the United States. In England the counties and boroughs coming under the aegis of local educational authorities seem to have a sufficient school population, yet many of them can provide admission to "grammar schools" for only a limited number of pupils due to lack of funds, a situation which is contrary to one of the main tenets of policy in Western countries, that of providing equal educational opportunities for every child.

On the other hand, the highly centralized system in France provides a high standard of education, and even its critics admit that the structure of public education, largely inspired by the republican ideal and an anticlerical bias, has not hampered the development of a flourishing private and denominational education.

In the Soviet Union and other countries of the communist block the State has a monopoly of all educational activities which are designed to serve not the individual but the State. Soviet education seeks to cast the character of the pupil in the mould of beliefs and values inherent in communist idealogy, and "the Communist party exercises complete control, both direct and indirect, over every aspect of Soviet education from the determination of overall policy to the day-to-day functioning of the schools".[**] Few people in the West would be prepared to subscribe to this kind of centralization.

THE DIFFICULTY OF MEASURING EDUCATIONAL PERFORMANCE

Now an economist wishing to assess the comparative advantages or disadvantages of centralized and decentralized education would first seek to measure the value of the output of both systems at the different levels. Unfortunately, we do not yet possess the means of making international comparisons in this respect. The average number of school years completed by the average pupil, which is sometimes used as a yard-stick for this purpose, is of limited value, as the curriculum content can be of much more importance than the duration of studies.

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[*] Cf. Hayden, *op. cit.*, and John Francis Cramer and George Stephenson Browne, *Contemporary Education*, New-York, 1956.

[**] See Nicholas de Witt, *Educational and Professional Employment in the USSR*, US Government Printing Office, Washington,,1961, pp. 42-43.

A 3 to 4-year course of secondary education in one country may be and often is equivalent to a 6-year course in another, and a secondary school diploma in one country can be equivalent to a B.A. degree in another country.

On the input side, it is possible in principle to evolve yard-sticks such as teaching cost and administrative cost per pupil at each level, building cost per cubic meter for the different types of schools etc. which, when adjusted to take account of the level of income and specific conditions, may give a clue to the efficiency of the services provided by the educational system under conditions of centralized and decentralized administration. I think, however, that such comparisons, valuable as they may be to stimulate thought on the subject, would not reveal any decisive advantage of one system over the other. It is important to realize that the optimum degree of centralization or decentralization varies not only with the institutional structure and the stage of development of the economy, but also with the quality of the personnel which takes and implements decisions at the various levels.

Furthermore, the advocates of decentralization sometimes overstate their case. Even under a highly centralized system, there is bound to be decentralization of certain functions and considerable freedom for schools and teachers to apply the regulations, at least in the countries of the West. It may even be thought that textbooks recommended or provided by a capable and responsible central authority are better than those selected by heads of schools. Some authors* have stated that a centralized system is less prone to educational change than a decentralized one, but this assertion is not corroborated by facts. In the Netherlands, modern schools of the Montessori and Dalton type have sprung up in spite of centralization, though some critics think that there are not enough of them. Experience in the Netherlands shows that newly-founded schools are particularly prone to change didactic methods, but the effect on older types of schools has been negligible. There appears to be more educational experimentation in the United States than in Europe, but this may be due to the strong spirit of innovation rather than to decentralization of the American educational system. And the highly centralized Soviet system does not appear to lag in educational change, though the motivation may primarily be idealogical.

It might be possible, of course, to assess the respective merits of centralization and decentralization by evaluating the various components of education in different countries. However, time and circumstances precluded such an exhaustive study, and the conclusions which will be found below are based on the experience of the Dutch educational system.

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* Cf. Cramer and Browne, *op. cit.* p. 15.

THE EXPERIENCE OF THE NETHERLANDS

The educational structure of the Netherlands has sometimes appeared as decentralized to the uninitiated.* In theory, most primary and secondary schools are operated by private organizations, mainly of a denominational character (Catholic and Protestant), and on paper they are controlled by the municipal authorities, which have primary responsibility for education. In reality, they are controlled by the central government which provides most of the funds for establishing and running the schools. This implies of course, control over allocation and expenditure, but in fact the government lays down rules about the number of pupils, the pupil/teacher ratio etc. for the municipalities and thus for the schools, stipulates the qualifications and remuneration of teachers and specifies in fact the entire teaching programme. The freedom allowed to the teaching staff in the United Kingdom would be unthinkable in the Netherlands, though it may appear attractive to many people in the West. However, the choice of text-books is left to the teachers.

This rather high degree of centralization has largely discouraged initiative on the part of the public in educational matters. Schools and teachers are often viewed as part of the "establishment" which responds only in a very limited way to the aspirations of the citizens. Unfortunately, school boards and parents' committees, which are associated with many schools, show none of the vitality which characterizes their American counterparts.

Apart from formal education, there is the training provided by private employers. An apprenticeship system,** mainly for those who have completed a three-year vocational course, is widespread in the Netherlands, and such programmes are heavily subsidized by the government. They are drawn up for specific branches of industry and supervised by joint bodies on which employers and workers are represented. It is likely that this system will be extended in the near future to older workers whose skills have to be adapted to new functions.

The government has often stated that its purpose is not to rule education, but rather to create by means of laws and regulations the climate in which educational needs, as expressed by educators, parents and the public in general, can best be satisfied. However, certain features of the Dutch educational structure raise serious doubts about the infallibility of consumers' preferences in this field. In secondary education, for instance, there is a great variety of schools in the

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* Some of the facts and thoughts expounded here have been taken from J. Idenburg, *Sketch of the School System in the Netherlands* (in Dutch), Groningen, 1960.

** See, Gertrude Williams, *Apprenticeship in Europe*, London, 1963, pp. 48-78.

Netherlands, literally an "embarras du choix", whereas in the United States the high school covers all the needs, and in the United Kingdom three kinds of secondary schools are considered enough. All these different schools are supposed to cater for the varied abilities and interests of pupils - or for ambitious of parents - but in fact their origins can be traced to the initiative of societies and institutions of a religious character and to needs expressed by certain groups. And instead of a pupil-centred approach, which is their professed aim, they often put a heavy emphasis on the curriculum content which has to be mastered. The result is a nightmarish struggle for passes and grades - and a large proportion of drop-outs.

Many problems often remain unsolved, apparently because they fall between two stools, as it is not clear under whose competence they fall. The central authority is apt to say that educators and pedagogical institutes are competent in certain matters, but their recommendations for reducing waste or streamlining the educational structure usually have little effect. This is caused, among other things, by the resistance to change on the part of most established schools, but it is also due to the lack of an organization capable of evaluating the practicability of the proposed remedies and, if need be, of putting them into effect. My conclusion is that the hands of central government need to be strengthened in this respect. No doubt, all the parties involved would have to be consulted, but in the end it is the government which, through laws and regulations plus financial assistance, must take the lead in carrying out whatever reforms may be necessary. I feel that the need for more centralized direction in education applies to other countries, but ignorance of their actual practice has been the reason why my observations are limited to the Dutch system.

There is, however, another argument which strengthens still further the case for centralization - the need for more research on the process of education. The effectiveness of the various methods of transferring knowledge has hardly been investigated. In many countries teaching through television is either non-existent or in its infancy, and the possibilities latent in programmed instruction through "teaching machines" are hardly recognized. Again, it is for the central government to assess the possibilities of such new teaching methods and to introduce the necessary innovations which are bound to upset traditional notions and are therefore likely to be resisted. In any case, televised and programmed teaching are apt to lead to greater centralization in education.

EDUCATIONAL CENTRALIZATION IN THE CONTEXT OF ECONOMIC GROWTH

So far the issue of centralization versus decentralization has been considered in the light of maximizing educational opportunities for consumers' satisfaction. Lately, however, another consideration has come to the fore : besides providing every child with as much education as possible, our societies are striving to promote economic growth, and are therefore interested in ensuring that the educational system is geared to the manpower requirements of the economy. Now it needs to be stressed that these two aims of education may well conflict with each other; in fact, they constantly do so in the centrally-planned economies where educational programming is subservient to economic policy. The production targets set by the plan are translated into the requisite number of workers of the required skill and education, and this number in turn determines the opening of places in educational institutions. Many students who want to enter the university are being excluded by severe competitive examinations in planned economies. In the Soviet Union the recent reform in secondary education has as its main purpose the increase in the number of those with a vocational training and the decrease in the number of those with a purely academic preparation, while access to higher education, with few exceptions, will be limited to those who have been employed in productive work for two years at least after the completion of secondary education.* Under this system freedom of choice is circumscribed in a manner which would be unacceptable in our countries.

However, the desire to promote economic growth has induced governments to pay closer attention than ever before to educational matters. In doing so, they sometimes over-stepped their traditional boundaries in the educational field, but more often than not with good effects. It is obvious in any case that the concept of education as a factor of production is bound to accentuate the tendency towards centralization in the field of education. An educational policy presupposes the establishment of precise and consistent targets for the country as a whole, a task which only a central authority can perform satisfactorily. Moreover, in a democratic society, such targets must represent a compromise between the various and often conflicting views on the role and purpose of education, and here again the government is the only possible arbitrator. The cultural aspect of education alone is not a sufficient criterion for formulating policy; a clearer perception of educational objectives will be obtained by linking education to life and keeping in mind the incontrovertible fact that to most people education is a means to an occupation.

Even if all this implies a growing intervention of government in the educational field, it is a matter of social efficiency to decide which responsibilities must be shouldered centrally and which functions can be delegated to local authorities, schools and teachers. No hard and fast rules can be laid down in this respect, as the division of responsibilities will largely depend on the structure of education as it has developed historically. Moreover, it is clear that in the future the views of industry and the trade union will have to be considered in addition to those of the traditionally involved groups when formulating educational policies.

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* Cf. de Witt, *op. cit.*

It can also be foreseen that eventually educational policy will transcend national boundaries. The educational requirements of the developing countries call for some devolution of power to an international agency capable of deciding priorities and determining in what countries training facilities can be most usefully expanded. Such decisions will then automatically become part of national educational policies, and here again considerations of efficiency will determine where responsibilities should be assumed. Moreover, it should never be forgotten that, in the last resort, the results of education rest on the quality, dedication and sense of duty of the teacher.

RESEARCH FOR EDUCATIONAL ORGANISATION

by

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I know of no way in which to define "research" for educational organisation, if by that term we mean anything resembling a scientific search for an optimum arrangement. The infinite number of variables, the slowness of the educational process, our uncertainty with regard to values, and the consequent difficulties of control and objective evaluation rule out a scientifically designed approach to the problem of educational organisation.

But, if by research we mean to "search again", then I think there are avenues of approach that are potentially profitable. These avenues are, in my judgment, those along which we are likely to experience the greatest number of provocative encounters.

It is a popular observation,, in the United States at least, that "education has become too important to be left to the educators". This is another way of saying that persons other than educators have come to be aware of the importance of education. And if educators, as such, have come to exercise inordinate control over the formal system of education, it is because education, no less than nature, abhors a vacuum.

The relationship of education to economic growth offers an example. There is no reason to believe that education has not always been a major factor in economic growth, at least potentially. But perhaps because it is by nature an intangible and elusive factor, it has been neglected by economists. In recent years, however, they have seized upon education as a possible explanation for certain economic mysteries of the past, and as a possible tool that can be manipulated to encourage economic growth in the future. Their desire to manipulate education for economic ends,, and their impatience with educators who resist such desires is understandable, but so is the reaction of educators who are made a little suspicious by both the lateness and the enthusiasm of the economists' embrace.

But let me say, as one educator, at least, that I welcome the interest of others in the work of education and hope that this interest is more than a passing flirtation. For basically education is intimately related to all aspects of contemporary society, and we can have the kind of education we deserve only if all of those relationships are fully acknowledged.

But the question does arise : who is to make the decisions that chart the course of education ? How are we to organise our educational efforts to ensure that they serve wisely and well the variety of social, political and economic objectives of a contemporary society ?

It seems likely that we can agree to rule out two extremes of possible organisation. On the one hand, an educational system controlled entirely by professional educators and insulated from the dynamics of society can be counted upon to become arid and sterile. At the other extreme, however, lies either chaos or loss of educational integrity. If education is everybody's business, it will be nobody's business. Or, if it should become the willing tool of current popular sentiment, it will lack the ability to anticipate future needs, or to take full advantage of past experience.

We need, therefore, to look for the solution of educational organisation somewhere between these extremes. We need to look for a system that makes education a part of life, yet sets it apart in certain important respects. Clearly, a sound educational system must take account of occupational needs, but must take account of more than that; clearly, it must be responsive to popular demand, without subjecting itself to the vagaries of popular politics. A sound conception of education, and a sound administrative organisation of education, will recognise that education must both lead and follow the society in which it exists, and do these things simultaneously.

Present patterns of educational organisation are under question in most of our countries - and this is as it should be. The nation that believes it has found a final solution to this problem will also believe that it has solved other complex social and economic questions. It is quite likely to be a nation that has stopped growing, economically or intellectually.

The relationship of education to society is a dynamic and complex one, and a sound administrative organisation is likely to have the same characteristics.

In those European nations in which strong central ministries of education have existed for some time, one senses that other ministries - labour or economic ministries, especially - are seeking to bring their influence to bear upon the educational system. In the United States, where there has existed no such educational ministry, and where some 46 separate federal agencies administer piecemeal programmes of aid to education, there are movements afoot to give greater central focus to the function of education, *per se*.

I dare not speak with understanding of the situation in Europe, but I do not hesitate to say that the situation in the United States today represents one of the extremes to which I have referred - chaos and an inability to plan for the future. At the national level, at least, separate agencies of government, pursuing their several and separate missions, are pulling and tugging at the educational system in a variety of directions. A deep-seated reluctance to have a general educational agency of any strength or influence has led to a situation in which the whole is neglected in favour of the parts. Current proposals would call for a council of advisers to the President or some other device designed to bring some order and perspective into the pattern.

Since much U.S. Federal effort has been concentrated in scientific areas, governmental developments in science-oriented agencies afford a clue to possible educational developments. So elaborate and complex have Federal scientific activities become, that two major legislative committees are vying for the privilege of investigating them. Recently, in an important statement before one of these Committees, the late President Kennedy's principal adviser on scientific matters described how the Executive Branch of United States Government had come to create a variety of co-ordinating mechanisms and a staff unit in the Office of the President itself. But he balked at the idea of creating a scientific ministry as such.

> "There have been proposals for much tighter management of technical and scientific programmes. We believe, however, that while some regroupings of Federal scientific and technological functions may prove to be feasible, a Department of Science, which some believe is a solution to our problems, would isolate science and technology from intimate involvement in the operating missions of Federal agencies. Furthermore, it is doubtful that any single agency could achieve the breadth of competence, the mastery of detail, and the diversity of perspective that a single directing mechanism for science would require".*

It is quite likely that a similar response would greet the proposal for a Department of Education at the Cabinet level. The suggestion of a joint Department of Science and Education has been made recently by a number of knowledgable persons (sic), but it, too, is likely to run against a characteristic United States resistance to centralisation of authority in matters intellectual. And education, in the context of United States Government, offers too small a dowry to make a marriage with science a probability.

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* Statement by Dr. Jerome B. Wiesner, Director, Office of Science and Technology, before the Subcommittee on Science, Research and Development, House Committee on Science and Astronautics, on Wednesday, 16th October 1963, page 25.

But though Americans are not at the moment clear on how they want to organise their Federal educational efforts, they are obviously discontented with their present arrangement. I regard this discontent as healthy as I would regard discontent with a highly professionalised Department of Education. In a world in which education increasingly touches the lives of all the people and all of their endeavours, we cannot be confident of the judgment of a professional army of educators. But we must acknowledge at the same time that wars - even against ignorance - cannot be fought without armies. Indeed, the analogy to the military is a fair one when we come to consider the organisation to administer our educational system. Peaceful nations seek to make their military establishments responsive to civilian-devised public policy, without destroying the spirit or the integrity or the expertise of the military. And this is, in a sense, analogous to our problem in education. We must recognise that the educational establishment has integrity and spirit and expertise, without encouraging an educational *junta*. In our search and research toward an appropriate organisation for educational effort, we shall do well to examine the organisational schemes we have devised for the management of our military efforts.

Two steps can be taken at once by any government to insure itself against the extreme dangers of educational organisation. First, the educational agency (Ministry, or whatever it may be called) can infuse itself with personnel whose orientation is to other disciplines or to other syndromes of social concern : economists, political scientists, sociologists, etc., who can raise within educational councils the kind of questions that do not arise spontaneously among educators. Every educational organisation or institution needs within it a kind of tolerated unorthodoxy - if only to ensure that it remains (or becomes) a Ministry of Education and not a Ministry of Educators.

At the same time, every other major agency of government can staff itself with an educational component - an individual or group of individuals who will constantly remind the agency of its impact upon education and the potential impact of education upon its mission. These should be educators in a true sense - educators who know, at least, some of the realistic limitations of an educational establishment, and what the impact of proposed programmes may be upon educational institutions. There is a dangerous tendency for everyone who has been educated to think of himself as an educator - just as all businessmen regard themselves as economists, and all ex-soldiers as strategists. There is sufficient substance to the art and/or science of education to warrant the presence of a practitioner within any agency that is conscious of the relationship of its function to the educational process.

We cannot afford, I think, to concern ourselves unduly with the problems of seeming overlap and duplication of effort. It is certain that two groups of people working on the same educational problem will provide us with two different solutions, and they cannot therefore be said to be duplicating efforts. I would not myself be troubled by the fact that there are educators working in the Ministry of Finance any more than I would by the fact that there are economists working in the Ministry of Education. Given our understandable uncertainty about educational answers, there is much to be said for raising the questions in as many different contexts as possible.

Another guideline or principle or rule we can safely follow in our efforts to organise education effectively is to make sure that we don't over-organise it. At one end of a scale, education performs certain functions that have immediate and obviously useful consequences for society, notably skill training. But the nations of the free world, at least, have acknowledged that the function of education extends to the development of creative imagination. And this is an end-product that cannot be programmed on computers or administered by governments. It is uniquely the product of the interaction of individual human intellects, and as such will continue to elude our best efforts at sound administration.

Just as, at the governmental level, I would tolerate and indeed encourage a degree of friction, interaction and debate, so should we encourage these conditions at the operating, institutional level. It is our best insurance against intellectual stagnation or bankruptcy. Just as the wise investor seeks diversity in the portfolio of his investments (and just as the gambler hedges his bets) so are we wise to encourage a degree of pluralism in our educational system and in our gouvernmental organisation for education. A pluralistic answer to the question of educational organisation is, at least, the easiest answer for a free society. It is probably also the safest and the wisest.

Just as there is value in the interaction of views among persons of different professional orientation, there is much to be said for encouraging a continuing dialogue among persons who view education from different national and cultural points of view. We are eminently conscious of the contribution that the so-called developed nation can make to the educational system of the developing nation, but we do not do all we might to exploit the contributions that one developed nation can make to another developed nation. We are, after all, working at an array of educational problems that confront every mature society.

I understand that there is an EIP (Educational Investment Programme) conducted under the auspices of the Directorate of Scientific Affairs of the OECD. I should like to suggest that these initials be permitted to stand for "Education in Process", and that the EIP be made a forum for the exchange of experience and of research findings on educational matters. More particularly - and I look at this from the perspective of an educator in the United States - it seems desirable to provide a mechanism for the exchange of information on such important educational problems as the following : curriculum and textbook revisions to accommodate new scientific findings ; the pros and cons of separate and unaffiliated research institutes ; teaching methods and class sizes at different levels of education ; teacher-training methods ; the use of economic incentives to attract and retain trained teachers and reward the superior teacher ; use of ancillary personnel in support of teachers ; use of television as a teaching aid ; school building design for efficiency and economy ; methods of encouraging scientific studies ; methods of reducing school drop-outs ; optimun age for identifying "talent" for academic studies ; effectiveness of various methods of student selection for university education, etc.

I am happy to report that the United States Office of Education (under its Special Foreign Currency Funds Programme) now supports in foreign countries research of significance to education everywhere and also carries out a programme of comparative education studies, and collects information which would assist in evaluating and improving education in the United States, as well as improving our technical assistant programme. An active EIP programme would yield some of these research findings on a multinational basis.

What I am trying to suggest here is that, in our search for desirable methods of organisation in education, we seek to ensure ourselves against the dangers of the extremes ; that we open all the windows of educational compartmentalization in order to let in the fresh air of diverse viewpoints ; and that we seek an organisational arrangement that will guarantee that the difficult and unpleasant questions about education are raised and raised again until answers are forthcoming. Each of us likes to think that the educational problems he confronts are unique to him and call for individually conceived and tailored solutions. But the plain fact is that we are all concerned with many of the same enigmas, however much our historic hypotheses have differed. There is much to be gained from common assault upon these problems. The bringing together of economists and educators - and from a variety of nations - holds promise of encouraging greater common effort.

SUMMARY REPORT

by

Roger GREGOIRE

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INTRODUCTION

It is not sufficient for members of Governments or administrations, following the line of thought developed in recent years by economists, to recognise that the development of education is closely linked to that of economic growth; due allowance must be made for this interdependence in practice when educational or economic policies are being worked out or applied, and governmental and administrative machinery must be organised accordingly. This machinery, which in the older countries is the product of long-standing traditions and successive improvements but which in the newer countries is sometimes hastily put together and often influenced by theories or fortuitous circumstances, can adapt itself only slowly to the progress of ideas and events. The aim of the meeting of the Study Group on the Economics of Education devoted to the organisational implications of the link between education and economic growth was to find out how and to what extent this adaptation had already begun, what difficulties had been encountered and how they could best be overcome.

Opening the meeting, the Director of Scientific Affairs of OECD said the time was ripe for this study because of the uncertainty prevailing as to which form of organisation would be most effective. He warned the Working Party against simple solutions and asked it to unearth the real difficulties lying below the surface. He emphasized that the discussions were more or less of an academic nature, that their findings would not commit national authorities, and that members could therefore express themselves freely. The Chairman of the Working Party explored the main aspects of the subject in an introductory talk, and concluded : "The hope of this meeting is : to suggest organisational solutions consistent with national policy objectives, to indicate areas where new problems raise the need for new solutions ; to locate areas where further studies may be justified ; and to draw attention to the fact that such organisational problems can be openly discussed ".

The Agenda, spread over six half-days, allowed for study, in turn, of the organisational repercussions of *(a)* science policy, particularly in its relationship to education, *(b)* the interdependence of manpower requirements and education, *(c)* the need to take education into account in economic planning, and *(d)* the need to adapt education itself to the needs of the economy. It very soon became evident that these questions were linked, so that working papers inevitably overlapped and discussion tended to go beyond the point under consideration or to revert to it when discussing the next item. The problems of organisation and the principles underlying their solution were, moreover, found to be the same from whatever angle the subject was approached. In reporting on the work, therefore, it has been considered advisable to rearrange the discussion as follows, as suggested by the Chairman's remark quoted above :

In the first part, comments on the aims of a national education policy (when such comments help to classify the *organisational principles).*

In the second part, comments relating to the *organisational formulae* proper.

While the following paragraphs do not summarise the working papers or oral presentations, their content has been taken into account in the argument, as have the contributions to the discussions which followed their presentation ; they are accordingly often drawn on or referred to.

1. THE AIMS OF A NATIONAL EDUCATIONAL POLICY AND THE ORGANISATIONAL PRINCIPLES DERIVING THEREFROM

The Working Party was not unmindful of the traditional aims of educational policy. These aims have been recalled by several participants, in particular by Mr. Erder, for whom education is first and foremost a means of influencing social evolution, a "machinery for transmission of values" as much as of knowledge. This supposes a basic "political" choice of the "philosophy" which it must expound. This philosophy must be "operational" in character and serve as a stimulus to action. A similar idea was taken up by Mr. Poignant, who includes the government policy for schools, and in particular the desire to make them more democratic, among the aims of a plan for developing the educational system. All through the discussions there was criticism of a policy which in the words of one Member, would amount to treating education as a tool to be used merely to encourage economic growth.

This agreement is significant not only from the point of view of of principle : recognition that education has other aims — and to some people more important aims — than to contribute to the material progress of a country imposes a certain choice in the matter of organisation :

First, a choice as to the kind of decisions to be taken and consequently the level at which they must be taken. Major decisions in education are those expressing the profoundest aspirations — emotional as much as reasoned — of the society concerned. Some of the factors underlying these decisions cannot be expressed in terms of quantity. There is therefore no question of their being solely the result of a well-reasoned argument based on ascertainable facts. Clearly, education policy cannot be seen as merely a technological issue. These conclusions were not reached during the discussions but they follow implicitly from the fact that the meeting agreed as to the need to leave the responsibility for the decisions in question to the highest political authorities.

Secondly, a choice as to the degree of independence which must be given to educational policy in relation to other aspects of national policy. While recognising that education is one element among others in the national policy, which must form a coherent whole, many members of the Group emphasized that it must not be subordinated to the others. In the view of Mr. Brand, for example, "our sense of cultural values must prevent us from linking education too closely with the needs of the labour market, even if it were possible to do so". Professor Babbidge said : "We need to look for a system that makes education a part of life, yet sets it apart in certain important respects. Clearly, a sound educational system must take account of occupational needs, but must take account of more than that; clearly, it must be responsive to popular demand, without subjecting itself to the vagaries of popular politics."

These preliminary observations set in their true perspective the efforts made by the Working Party to state what new factors have to be taken into account by educational policy and under what conditions such a policy can and must fit into a general policy of expansion without thereby losing its independence. Three factors were analysed : the development of scientific research, the satisfaction of manpower requirements and, more generally, economic and social progress.

Education and development of scientific research

The discussion of this question, introduced by Professor Halsey and Professor Shimshoni, developed along three lines : the Group considered, first some general aspects of policy for the development of science; secondly, the relationship between such a policy and education in general, and lastly, the role of the scientist in economic planning.

The third point will be dealt with in the second part of this report, and the two others in turn : the organisational formulae vary appreciably according to whether more importance is attached to the rapid development of research for its own sake or whether a divorce between the institutions responsible for science and education is to be regarded as a danger for both of them.

General aspects of a policy for the development of science

Even if we admit with Professor Halsey that one feature of our "post-industrial" society is the existence of a "mechanism of self-adaptation" (owing to the effect of scientific discoveries on economics, administration, and every other aspect of social life), the setting up and satisfactory operation of this mechanism implies a science policy which is the outcome of informed choice and voluntary decision. Science, which was formerly only one factor in national policy (for example in connection with defence, agriculture, statistics, etc.) has now become one of the aims of that policy. Professor Halsey demonstrated the truth of that statement with particular reference to the recent examination of Sweden by the Scientific and Technical Personnel Committee of OECD.

The attitude of members of the Working Party to "science policy" was found to be very close to that which, as noted above, they expressed in regard to education policy. Several of them emphasized the need, as expressed by Professor Shimshoni, "to develop science as a goal in itself, as a social aim and resource. The strategy for scientific development should be governed . . . by the need of science itself . . . Scientific work should be in a great sense insulated from the current pressures and from the fluctuation of changes in economic needs." They accordingly consider that, as it was put by Mr. Poignant, "the expansion of research requirements is partly independent of economic growth". Only in part, however : the conclusions of numerous studies on the direct link between the level of investment in research and the rate of growth, and on the need for governmental encouragement and financial participation in this field, are very generally accepted. In this connection, reference was made to the two following aspects of science policy :

- The need, particularly for small countries even when highly developed, to choose between importing scientific and technical innovations developed abroad and encouraging specialised research at home. This need was already referred to in the examination of Sweden : although that country is sometimes reluctant to take part in large-scale international research projects, the results of research carried on throughout the world are systematically exploited.This first fact has some very important consequences for international co-operation, i.e. science policy in each country depends to some extent on the degree of such co-operation, and national scientific organisation must be designed to extract the maximum advantages from that co-operation. Professor Halsey, Professor Shimshoni and Mr. von Mutius strongly emphasized this point : "It is essential", said Professor Halsey, "to ensure that the efficiency for international co-operation is equal to, or higher than, the efficiency of nationally organised work". In the view of Professor Shimshoni : "A small country needs to expend particular efforts to keep abreast. In basic science, once an area develops, the natural world-wide communications network of scientists, with some encouragement, can operate well. (A small country probably needs special help in travelling, and in receiving visitors.) In technology, communication is more complex, involving a myriad of disciplines and communication networks (salesmen, publications, feedback from the market place, etc., as well as the more conventional means)." Lastly, Mr. Erder raised a very important point in this connection, i.e. whether the developed countries planned to put their research at the disposal of the less privileged countries.

- The need for a choice, at the national level, between the various paths open for research. No longer could it be admitted, Mr. Vaizey said, "that it was the function of the research workers on natural sciences to put forward their own scheme for research and then for governments to see how much money they could supply". Even in the event of agreement to leave a lot of room for free research, the question arises as to how the big appropriations are to be divided up. Professor Halsey, quoting Sir John Cockcroft, recalled, for example, that in Great Britain "there are major claimants on the public funds for science : those who wish to strengthen university science, especially biological science; those who wish to stimulate applied industrial research; those demanding big science projects, such as large nuclear reactors ; and those who want to foster space research". A choice of this kind, Mr. Poignant remarked, is by definition beyond the research worker as such; factors such as national defence or prestige necessarily have to be taken into consideration.

Nevertheless the tendency now seems to be towards a situation in which the "community of learning" will play a bigger part in laying down science policy. Professor Halsey analysed the trend which had hardly begun before the second World War, in which the contacts of the world of science with the political heads have moved from the unofficial to the official level (particularly through the creation of advisory committees), and then from an advisory status to one of participating in decisions. Professor Shimshoni, after describing the organisation in

Israel, concluded : "The participation of the scientific community must be achieved throughout the whole process of decision making. The actual direction of research and development should be in the hands of scientists and technologists ; and the way the organisation operates needs to be such that there is a strong impact of actual work in progress and a first-hand knowledge of policy."

Link between "science" policy and education policy

The progress of science has transformed the whole question of education. Professor Halsey recalled this in a striking phrase : "the advanced post-industrial societies set aside a vast proportion of their resources to guarantee that the experience of our children will be an experience different from that of their parents". He, as well as many of the subsequent speakers, emphasized the consequences of the world developing more and more rapidly under the influence of science : knowledge becoming out-of-date, the need to adapt to changes, etc. The discussion of the relationship between science policy and educational policy was essentially concerned, however, with two aspects :

Training of research workers. The Working Party accepted the proposal of Mr. Poignant that only schools, and not industry, could train researchers and their technical assistants. The development of research, therefore, depended on that of education, and in particular on the final stage of higher education in which the student is associated with the work of a teacher who, to fulfil his function, must be as much a research worker as a teacher. There is no evidence to show that, generally speaking, the larger attendance in schools or universities is accompanied by an increase in the proportion of students opting for science. Professor Vaizey's comments on the Robbin's Report demonstrated that in Britain this is not the case. Similarly Mr. Brand showed that the forecasts of the Netherlands Dalmuder Committee in 1959 - according to which it would be desirable by 1970 for 43 % of all students to be studying science and engineering (compared with 36 % in 1955) - were nowhere near being realised. The figure for 1959-1961 was only 37 %.

Competition between science and education. In the words of Professor Halsey, "the research pressure drains off some of the most talented people - and supply is in any case short - from the proper function of University teaching, this in turn tends to impoverish teaching at the lower levels of education, and so takes away a great deal of the potential effectiveness of the reponse of educational systems to these pressures for increased science and technology."

As Mr. Poignant remarked, it may well be that research will offer unlimited scope for expansion for intellectuals, but, in the immediate future, the needs of research and education respectively must be a matter for selection, in the interest of both.

It follows that any scheme that would result in scientific and education policies being drawn up or carried out separately would be open to criticism.

In some countries, however, this is happening : Professor Shimshoni, for example, noted that in Israel, "there is, today, a central policy for science, however incomplete. A serious lack is the fact that science and education policies are not fully integrated. The Council for Higher Education at the Ministry of Education has dealt, until now, mainly with academic accreditation of newer Universities. Such educational planning as is done is still carried out independently of policy for science. The pluralism of the independent institutions and the influence of donations on the direction of work makes the integration of this policy somewhat complex." Similarly, Professor Babbidge severly criticised the state of affairs in the United States.

There is also a fairly widespread tendency to entrust direction or co-ordination of scientific work to authorities other than those responsible for education : Professor Halsey explored fairly fully the question of setting up ministerial research departments. Both he and Professor Vaizey emphasized the conflict now going on in Great Britain between those who favour a large, comprehensive Ministry for Science and Education, and those in favour of dividing responsibilities between higher and non-University education in science and of separating science research from education at all levels.

Lastly, there was at least implicit agreement in the Working Party on the principles of an organisation *i)* at government level, *ii)* able to deal with the general direction of education as a whole and of research, *iii)* sufficiently flexible to accommodate a policy for "pure" science in the framework of general decisions and *iv)* associating the "scientific community" with the definition of a science policy.

Education and Manpower Requirements

The study of the "manpower" factor in educational policy was formally introduced with Mr. Goldstein's paper. In fact, however, it originated from the very precise suggestions made by the Chairman in his introductory statement and was constantly being taken up again during the discussion on Professor Halsey's oral presentation and the consideration of the planning formulae described by Mr. Poignant and Mr. Erder. The paper submitted by Mr. Goldstein is so clear and complete that no further comment is necessary. Among other things, it contains a detailed description of the principles of organisation to be followed if education is to meet manpower requirements. The Working Party as a whole expressed agreement with these principles ; it felt that it would be difficult to do more while still respecting national traditions and peculiarities in governmental and administrative structures. The following paragraphs will be confined to summarising the contributions to the discussion proper.

The discussion threw some light on the importance actually given at present to forecasting manpower requirements when drawing up educational policy. For Great Britain, Professor Vaizey said in his comments on the Robbins report that the Government " has deliberately turned its back on manpower forecasting as a basis for educational policy. This means insofar as we have educational plans (and in striking contrast to the situation four years ago, the United Kingdom Government could claim to be in the van of educational planning), we are the only country which has sophisticated educational planning but makes no use at all of manpower estimates in setting up these plans. "

The United Kingdom is perhaps an exceptional case. It must, however, be recognised that even those countries which do take account of manpower requirements in their educational policy are far from assessing such needs completely or accurately :

> Of all the countries represented at the meeting, it was noted that only Turkey has based its educational development on forecasts of actual requirements.
>
> Mr. Haythorne pointed out that in Canada the extension of technical training now underway, mainly by channelling secondary education towards the different professions and increasing the number of technical institutes through aid from the Federal Government to the Provinces under agreements renewable for minimum periods of 5 years*, was originally inspired by the desire to adapt manpower, particularly at technician level, to the rapidly changing Canadian economy**.
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> Mr. Poignant's intervention made it clear that the French plan takes manpower requirements into account *among other factors* in drawing up investment programmes for schools. More exactly, it may be

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* The present agreements, covering the period 1962-1967, provide in particular that in the first two years the Federal Government will bear 75 per cent of the cost of investment to enlarge existing establishments or set up new ones.

** While this is certainly true of the initiative taken by the Federal Government, the question arises whether manpower requirements are sufficiently known and taken into account at all levels of Government. This question was discussed in 1964 in the OECD review of Canada's educational policy.

noted here, the share of vocational training institutions increased from 28 per cent in 1953-1957 to 59 per cent for 1962-1965. The very ambitious targets provide for an increase in the proportion of the secondary school age group going to the technical lycées (for preliminary training for middle-level management) from 3 per cent in 1961 to 17 per cent in 1970. It cannot be said, however, that these targets were the rational outcome of a long-term forecast of the distribution of the working population; although forecasts of this kind have been made with a fair degree of accuracy for executives in the secondary sector, the analysis of the requirements of the tertiary sector still leaves much to be desired.

Mr. Brand referred to the report on requirements for university trained personnel from 1960 to 1980 compiled by the Netherlands authorities. He considered that in most manpower forecasts insufficient attention was paid to the contraction in the needs of the industrial sector as a result of accelerated mechanisation and automation. He suggested detailed enquiry into the future character of our societies and the probable expansion of the service sector and its need for qualified personnel.

Mr. Goldstein himself recognised that to rely on information about requirements in "specific categories" of personnel was not a practical possibility, at least at the present time. The Deputy Director of the Bureau of Labour Statistics therefore emphasized the importance of a sufficiently general and flexible training to avoid excessive specialisation which hindered the mobility of manpower. "Invention", he concluded, "is the work of non-specialists".

It would be mistaking the wish for reality to refuse to admit that so far "social demand", which often aggravates the pressure of a growing population, plays a more important part than manpower requirements in the development of education. This must not, however, be allowed to give rise to an organisation in which those responsible for education and those responsible for manpower questions work separately - quite the contrary. It must be recognised that much, if not everything, still remains to be done in most countries to achieve the co-operation which is desirable. Nor would it be sufficient to set up new institutions, since apparently knowledge of the problem is what is lacking rather than the desire to co-operate. As Mr. Poignant pointed out, "the basic difficulty arises from the time lag in between seeing the results of productive investment (construction of factories, etc.) and those of investment in schools and universities. The demand for qualified or highly-qualified manpower which arises in the course of carrying out a plan cannot be satisfied by the current educational programme but only by the results of earlier programmes (to the extent to which schools are responsible for the supply). Conversely, the vocational and technical training targets in a plan must relate to manpower requirements which are much further ahead" - in practice, twelve or fifteen years away.

Education and social and economic progress

If, as was said earlier, pressure of population and social demand (together with a policy of democratisation which is a manifestation of the latter) are the basic driving power behind the extension of education, it is important to measure the forces involved to assess their effect on the structure of educational systems, and find out whether the country's economic resources are adequate to meet them.

On the first point, it is interesting to note that the forecasts have been very quickly overtaken almost everywhere. This arises from the fact that although population pressure can easily be assessed, some elements are still missing, e.g. studies of opinion or behaviour, which would enable the trend of social demand to be more accurately appreciated. Professor Vaizey explained, for instance, that according to popular opinion, any extension of secondary education facilities in Great Britain would be due mainly to the growing number of girls from wage-earning families. The study made by the Robbins Committee has shown on the contrary that the extension is due to a sizeable increase in the number of middle-class children. Professor Vaizey also considers that the forecasts in the Robbins report are much too modest : he thinks that during the next twenty years the numbers attending Universities will be not trebled but quadrupled and that by about 1985 Britain must expect to be teaching not 750,000 but approximately 900,000 students. With this admittedly important reservation the work of the Robbins Committee is clearly a remarkable study of social structures and the correlation between the various economic, social and cultural factors which can influence the development of an education system. It is perhaps not surprising that such a study, as Professor Halsey remarked, has emanated not from University but from government circles*. It is certainly desirable that other similar studies covering a wide range of disciplines should be made.

Concerning the second point it seems to be agreed that social demand has a two-fold effect on the internal structure of education. First it encourages the growth of vocational education at all levels : as Mr. Brand said, "students want jobs". The nature of higher education is tending to change, even in the less specialised branches : culture and "objective" research are less attractive than an education directed towards a definite career. The distinctions between the levels of education are also becoming blurred. For example, the European countries in which primary and secondary education used to be quite distinct are now tending more and more to adopt formulae approximating those adopted in America. Moreover, the barrier between secondary education - or at least post-secondary technical education - and higher education is disappearing. It was again Professor Vaizey who observed that "if you compare the situation in 1958 with the present one, the most striking development is the growing degree of co-ordination between the various levels of education". There are in consequence some quite new organisational problems : "Five years ago, it was a heresy to suggest that the Universities in the United Kingdom should in any way be supervised by the executive offices of the Government . . . This doctrine has been completely abandoned. . ."

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* "I would describe the Robbins operation as the most superb piece of social arithmetic that we have yet seen emanating from a government source. In a sense, I would say that it is a dramatic demonstration of the way in which scholarship has entered the governmental process".

Concerning the third point (the possibility of being economically in a position to meet pressure of population plus social demand), the responsible authorities are more and more frequently asking themselves how much of the gross national product should be devoted to the development of education. It is even certain that they attach more importance to this than to the converse problem, i.e. the ultimate consequences of that development on the rate of economic growth. It is admitted that sums devoted to educating the public constitute in the long run a productive investment, the effect of which cannot, however, be measured in advance. In the short and medium term, they are concerned with fixing a reasonable amount for that investment in the light of the other requirements to be satisfied, recognising that there is no calculation of profitability whereby that amount can be scientifically determined. This concern leads each country to deal with the matter more or less systematically, as can be seen from the experience of the United Kingdom and France respectively :

> Professor Vaizey has shown how the work of the Robbins Committee in Great Britain demonstrated "a certain amount of co-ordination between the growth of G.N.P. and the estimates of educational output. But these relationships are not expressed in any meaningful economic terms, nor are they expressed in terms of demand and supply of skilled manpower . . . There is undoubtedly a very strong feeling indeed that expenditure on education is expenditure for economic growth. But this is little more than an impression about life in the 1960's because evidence has not been produced at all . . . You could interpret [the Robbins report] in terms of a middle-class

political movement rather than any realistic assessment of economic requirements of a nation which is seeking to modernise its industry ".

Mr. Poignant, on the other hand, emphasized the two sets of choices and consequently two sets of decisions that have to be made when a plan for extending school and university facilities is incorporated in the general plan for investment : *a)* the choice between investment in education and other investment (first, a choice between demands on the gross national product for "productive" or "social" investments, and secondly a choice between education and other "social" needs to be satisfied); *b)* the choice between devoting the share of investment in schools and universities catering for greater numbers or improving the quality of teaching : within the limits of the means available, should arrangements be made to educate the greatest possible number or should numbers be limited so as to improve the conditions of teaching ?

In any event educational policy can no longer be framed on philosophical or pedagogic grounds, as it was until recently. This justifies the paraphrase of Clemenceau's words which, according to Professor Babbidge, is current in the United States : "Education has become too important to be left to the educators". This states, in a deliberately paradoxical epigram, the need for new organisational formulae.

2. NATIONAL EDUCATION POLICY AND ITS CONCOMITANT ORGANISATIONAL FORMULAE

It is comparatively easy to state organisational *principles*, as a function of the aims to which a national educational policy must aspire. Those which emerge from the analysis summarised in the first part of this report can be stated as follows :

As the educational system must express the most lofty aspirations of the community, educational policy must emanate from the highest political level. It cannot be left to "technocrats", however qualified these may be.

Education being an end in itself, educational policy must not be subordinated to other aspects of national policy. On the contrary, it must form part of this general policy of which it is a basic ingredient.

It follows that, in drawing up and implementing an education policy, continuous co-operation must be provided for between those responsible for overall policy and those in charge of education proper, scientific research, economic development and manpower (this list is not exhaustive and, depending on the countries selected, defence, public health, social security, industry, agriculture, religion, etc. might have to be included).

Those responsible must be supplied with information and forecasts (statistics in particular) and the means of orienting education, which is a long-term process, with an eye to what is to be achieved in the next 12 or 15 years.

On the other hand, it is very difficult, if not impossible, to lay down organisational formulae for general application.

Even in the abstract, a conflict will arise among the specialists in organisational questions according to subjective temperament : e.g. between those who value a clear-cut institutional structure and those who consider that the structure matters less than the influence of personalities whose work might be handicapped by too rigid an organisation, or between those who feel that decision-making must follow a strict hierarchical structure, and those who prefer to rely on the co-ordination of independent authorities. These divergent tendencies can be traced in the working papers and were confirmed during the discussions.

The concrete approach, starting from practical results, reveals that these are rarely the product of scientific study of needs or a logical construction, but rather of local conditions in the country concerned. Professor Vaizey, for instance, investigating the background to the discussions now going on in Great Britain about the possible setting up of a second Ministry of Education criticized " the desire of the universities to be attached to the most prestige-bearing politician in the government structure . . . and at the same time the passionate desire of the scientist for some form of recognition in the government structure with . . . a singular lack of awareness of the way in which the government structure works ". Similarly Mr. Erder showed how the *de facto* division of responsibility in a coalition government complicates the work of planning. Finally, Mr. Shimshoni emphasized the consequences for education and research of increasing the number of semi-independent institutions often set up for reasons of immediate expediency.

The greatest care must therefore be taken in drawing general conclusions from suggestions which appear plausible, or even from solutions which have been shown to be effective in a given national context. For the rest, the Chairman of the Working Party has made it quite clear that the task was not "to agree on ideal solutions . . . The administrative machinery in each country varies according to national traditions, attitudes, philosophies, personalities and accidents. . . It is preferable to recognise that there can never be a perfect solution to an organisational problem." The Working Party nevertheless considered, following a suggestion by Mr. Debeauvais, that it could investigate the *functions* for which organisational formulae must be adapted, and draw some conclusions from this. It consequently centred its discussions on two functions :

the framing of a medium and long-term educational policy ;

the day-to-day carrying out of this policy.

Arrangements for framing an education policy

Due to lack of time – and also to insufficient information – the Working Party could not make an exhaustive study of these formulae. Experiences or suggestions of widely different kinds were submitted during the discussion. They may be grouped under three headings, according to whether they tend to increase the authority of the Ministry of Education, to keep the present division of responsibilities with some degree of co-ordination or to entrust the framing of an educational policy to an *ad hoc* body. After considering these formulae, it will be useful to dwell more fully on the organisational aspects of the French planning system, to which the Working Party gave lengthy consideration. Lastly, some general conclusions on the human aspect of the question can be drawn from these discussions.

The organisational formulae considered

The first formulae considered are based on the idea that, as educational policy goes beyond the limits of education in the strict sense but must retain a large degree of independence, it is important to extend the responsibilities of the Ministry of Education (if this exists) to enable it to have effective control over its policy. To this line of thought belong, for example :

The suggestion made by the Chairman of the Working Party that "manpower needs become part of the responsibility of the educational system". In consequence, educational authorities may be given responsibility for projecting manpower requirements and for determining the educational resources needed to meet them. This may be carried out by internal staff, or by arrangement with universities, economic research institutes, etc.

The suggestion made in Great Britain, during the work of the Robbins Committee, that a super Ministry of Education and Science should be set up grouping several departments and responsible for non-university teaching, university teaching and civilian scientific research.

These suggestions prompt the following comments :

the first is certainly greatly in advance of the factual situation and the ideas current in most countries, mainly because, as has been pointed out above, manpower requirements have been treated up to now as a secondary factor in the development of education. Thus, Professor Vaizey emphasized that "co-ordination between the Ministry of Labour and the Ministries of Science and Education has never . . . been considered in any of these (Robbin's and Trend's) reports . . . , with the incidental result that apprenticeship schemes and vocational training schemes outside the universities have been omitted from almost all the considerations of these committees";

the first suggestion, like the second, goes against the tendency already mentioned to divide up rather than concentrate ministerial responsibilities, either for reasons of political balance or from a desire to respect the individuality of the various interests concerned by having them represented in the government by different authorities, or from a fear that the administrative units being set up would be too large. This fear may itself have political origins, i.e. a fear of excessive influence exerted by those responsible in a main (or technical) branch, or a fear of creating too cumbersome a machinery. The chairman's reply to this last point was that it was not the size of the administrative organisations but the unavoidably large scale of the difficulties that mattered.

The second organisational formulae consist in maintaining the separation of responsibilities but encouraging and even requiring those responsible in the departments concerned to maintain continuous co-operation :

This is the only solution acceptable to countries with a federal structure, in which education is the responsibility of the separate States or Provinces while economic development and use of manpower necessarily come under the Federation. Several practical achievements have been brought to the notice of the Working Party :

in Germany, the setting up of a committee on which the 11 ministries of education of the Länder are represented; the question is now being considered of reporting to the President of the Federal Republic on the development of education and research every year or two years, the aim being to obtain co-operation among the responsible administrations;

in Germany, again, a plan for enlarging the universities, passed in 1958, was carried out in 1960 after some obstacles had been overcome, with the help of the Länder education representatives and the agreement of the Finance Ministry;

in Canada, the recent convening by the Federal Labour Department of a meeting of ministers of labour and ministers of education in the ten Provinces ;

Mention was made of the fact that, although nothing of the kind has been undertaken at government level in the United States, there is in fact co-ordination, particularly between the universities, through the activity of professional bodies and various private committees, often assisted by the principal foundations ;

Non-federal countries also employ these flexible arrangements for co-ordination. Professor Halsey cited some examples, particularly in connection with science policy, and Professor Shimshoni analysed the system of inter-ministerial committees in Israel.

The comments prompted by these arrangements - apart from the fact that none of them seems to lead to the framing of a complete policy in the sense described in the first part of this report - are of two kinds :

First, their continuity must be assured. As Professor Halsey said, "There is a long tradition in many countries of things like royal commissions, which on the whole rely on what we now see as very primitive social science research methods ; the putting of wise questions to wise people, the listing of these answers, and a careful summary to avoid the more obvious discrepancies between one man of wisdom and another man of wisdom. Instead of this (one needs) a body of carefully collected and on the whole quantified information which can form a rational basis for policy formation" ;

Secondly, they can be effective only if they bring together those actually responsible - and not only research workers or officials of research bodies. It has been made quite clear that the plan for expanding the German universities could be put into effect only through the agreement of the Ministers of Finance responsible for the cost.

The third type of formula - that in which the framing of at least part of an educational development plan is entrusted to an *ad hoc* body - was illustrated by Mr. Erder, particularly in his comments on the Turkish education planning experiment. In this, the National Planning Office has only to work out the "main aggregate figures" ; the location, type and size of new educational establishments and all questions connected with teaching were left to the various Ministries responsible for educational establishments. Mr. Erder showed how complete has been the separation of responsibilities just referred to :

although submitted to a group of senior officials appointed by the Ministry of Education, the Planning Office's proposals were only slightly modified ;

> although the Minister of Education has attended the meetings of the higher Planning Council which puts the final touches to the work of the Planning Office, when educational questions were being examined with the Ministers of Agriculture and Health (who are responsible for a few teaching establishments) he has never been a member of the Council;
>
> "contacts between planners entering territory dominated by educators and the authorities responsible for education turned out to be very delicate." This led both to uncertainty as to policy, and indecision as to which departments should give practical effect to the plan.

The risk involved in this type of arrangement is that there will be a lack of co-operation between the traditional departments, which were formerly solely responsible and whose work is still indispensable, and the *ad hoc* office which does and must take only a part of the responsibility. This fact led the Turkish expert to wonder what will be the results of the work being done by the teams sent out under the OECD Mediterranean Regional Project : because of the attitude of many of the Education Ministries, these teams had to be recruited from outside the Ministry and have had to work more or less independently. But it will no doubt be desirable to associate them more intimately, as time goes on, with the activities of the traditional administration.*

Organisational aspects of the French experiment in educational planning

The educational development planning machinery used for the French modernisation and investment plans was very fully described by Mr. Poignant. Although Mr. Poignant's analysis does not require comment, the French experiment is so original and the Working Party devoted so much of its meeting to it that it is worthwhile emphasizing once more its organisational aspects. For the sake of clarity it is perhaps useful to recall the scope of the operation :

> The aim is to decide what share of the collective investment during the period of a plan (four or five years) should go to education in all its forms. It will be realised, first, that the method cannot be transplanted to countries which have no investment plans, i.e. which do not decide in advance what share of the gross national product is to be set aside for fixed capital formation or how that fixed capital will be divided between "productive" and "social" investment. But it also follows that the operation is effective only when investment appropriations are fixed; it has nothing to do with

* It should be added, however, that hesitations of a psychological order still stand in the way of such association.

the allocation of "consumption" expenditure of the public authorities financed by operational appropriations provided each year in the Budget. Teachers' salaries, for instance, maintenance of schools, current expenditure on laboratory materials, the various kinds of aid to scholars and students, and administrative costs of education, do not enter into planning. Mr. Poignant's talk nevertheless made it clear that when the Government undertakes, under the Plan, to build a school of a given type, it thereby undertakes to see that the school can function properly. The planning departments, moreover, take running costs into account in calculating the general economic situation at the end of the period under review; the effect of educational investment on "consumption" expenditure for education is not, therefore, overlooked;

The Plan lays down aims the achievement of which is the responsibility of the appropriate administration. The planning departments never, therefore, take over from the work of the responsible ministerial departments. It follows that, as in Turkey, all purely teaching matters (syllabuses, methods, etc.) are outside the purview of the planning departments : these questions are important to an educational policy but not in fixing the investment allotted to education; the latter decision belongs to the Plan.

In the light of these observations and the explanations by Mr. Poignant, the main characteristics of the French experiment, from the organisational point of view, are seen to be as follows :

The machinery set up for each Plan and the evaluation of the results obtained during and at the end of the Plan automatically ensure *continuous co-operation* between those responsible for the various elements of educational policy. Questions of precedence between the departments are avoided : for instance, the Committee of School, University and Sports Equipment (which, under the *Commissariat Général du Plan*, prepares information relating to education) is presided over by someone who is independent of those departments; its rapporteur, who directs its work and makes the final proposals, is a member of the Conseil d'Etat, and is also independent of the departments concerned.

The responsibility of these departments is in no way diminished. The Plan specialists use the information they provide and remain in contact with their representatives. The rapporteur of the School, University and Sports Equipment Committee, for instance, bases his report on the requests received from the directors of the Ministry of National Education.* Administrative units have been set up within the Ministry itself to help with preparing and operating the Plan : there is, in particular, a sub-Directorate for the Plan in the Directorate of Organisation and Educational Syllabuses. As far as manpower requirements are concerned, the rapporteur bases his assessments on what he gleans from the Manpower Committee of the Plan which keeps in continuous contact with the responsible Ministerial departments. Nothing, however, prevents the rapporteur of the School, University and Sports Equipment Committee from dealing directly with these departments : for example, a study group on the long-term trend of the working population was set up at his request in the National Institute of Population Studies ; this group is working for two of the committees concerned in the Plan.

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* In the French Ministries the title of "Directeur" is reserved for high

The *Commissariat Général du Plan* does not either legally or in fact replace the responsible political authorities. Its opinions, expressed in a preliminary draft Plan, are only advisory and the final decisions devolve on the Government before the final proposal is submitted to Parliament.

As already mentioned, the *Commissariat Général du Plan* does not intervene in the carrying out of the Plan, which is the responsibility of the Ministers concerned. On the other hand, it is responsible for evaluating the results obtained periodically and after each Plan has been completely carried out.

The Plan is not, however, merely a declaration of intentions ; it is also operational. First, by adopting it, the responsible political heads undertake to provide the necessary funds in annual instalments. Secondly, the departments responsible for carrying out the Plan and which helped in drawing it up, use it as a guide both in preparing their annual budgets and in proceeding with their building programmes.

Taking into account the political and administrative situation in France and the aim in view, it would therefore appear that the organisational arrangements adopted for the French planning system avoid most of the difficulties encountered with the other formulae discussed above. In any event they have not given rise to the reservations or uncertainties referred to by Mr. Erder in connection with the Turkish

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officials *directly responsible to the Minister* for the functioning of an important section of the administration. Although the number of these officials has increased considerably during the past twenty years, there are still comparatively few, a fact which points to the high administrative standing of those concerned ; there are only nine "Directeurs" in the whole of the Ministry of Education. Those most concerned with the working of the Plan are : the Director-General of Organisation and Educational Syllabuses, the Director of Higher Education, the Director of School, University and Sports Equipment and the Higher Commissioner for Youth and Sport.

experiment. This does not mean however that they should be put forward as a model because, once again, they assume that the gross national product is divided in advance, besides reflecting a certain concept of the role of the State and certain administrative traditions. It is encouraging, however, to think that it is possible, at least under certain conditions, to set up an organisation which satisfies as far as possible the principles set out in the first part of this report and summarised in the first paragraph of section 2 above.

The men involved

Whatever organisational arrangements are adopted, they always result in the long run in bringing together (under a single head or within a department or a co-ordinating committee) men who have different training and interests and often different standards of value. Mr. Poignant often referred to the question of intercommunication and Mr. Erder developed this idea : "The problem here is one of common language among planners, educators and other technicians. Some have to be made to think in terms of broad planning concepts and economic constraints and priorities, others in terms of the constraints proper to the field of education. Lack of co-operation between the educators and planners may result in planning on the basis of the continuation of past experience, the maintenance and even codification of the existing system with all its defects - a wasteful and irrelevant exercise." This kind of harmonized thinking is possible only if each is sufficiently familiar with the techniques of the others involved. It is not a matter of transforming educators into economists or vice versa : many members of the Working Party feared that in work on educational planning one technique, and consequently one set of values, might overshadow the others, and in particular that the education authorities might be subordinated to the statisticians or those responsible for manpower questions. The educators must become familiar with economic realities and those negotiating with them must also understand the general aims of education and the requirements of the teaching profession. International organisations, and the OECD in particular, have already done much to train and provide advanced courses for economists specialised in educational or scientific development questions. Should they not take the initiative in holding meetings of the various branches at which specialists connected with educational policy would exchange knowledge and ideas ?

At this juncture it is useful to return to one of the points raised by Professor Halsey in connection with the development of research : that of the part played by scientists in framing economic growth policy. This question was raised when Sweden was being examined by the OECD Committee for Scientific Research : Mr. Poignant at that time held that in planning over a period of four or five years the economist assumes a static state of fundamental scientific knowledge and calls for a distribution of effort at the level of applied technical research according to the needs of the short-run economic plan. In the long run, however, the economist must rely on the scientist to forecast fundamental developments in methods of production - for example whether France will be based on atomic power in 1985. It is hoped, apparently, that the scientist will enable the economist to formulate his plan for the next period (1966-70), not in terms of the present state of knowledge, but in the context of long-run development in science and technology.

Professor Halsey had doubts about following this method : "The difficulties of this new role which has been cast for the scientist are surely formidable. A useful appraisal of them might be had from research into scientists' guesses in 1943 of the state of scientific knowledge in 1963. At all events it is paradoxical to ask a scientist to tell us today what by definition he will not know until tomorrow. Nor is the forecasting of long-term demands for scientific manpower free from those difficulties, given the basic fact about scientific research that its major purpose is to make existing knowledge obsolete and therefore existing scientific and technical skills redundant."

It is, however, precisely because technique becomes obsolescent that Mr. Poignant regards the exchange of ideas between scientists and economists as indispensable. While admitting that the former can go only a limited way towards making forecasts, he considers, for example, that detailed information about the scientific research now being undertaken and the results to be expected would make it possible to avoid very costly investment in laboratory equipment that might well be out of date even before it was installed.

Organisation needed for carrying out an education policy

Due to lack of time, only two of the organisational questions relating to educational policy were dealt with at the meeting :

> First, the question of responsibility at the highest level : although the framing of educational policy is in many countries entrusted to one or more bodies independent of the authorities responsible for teaching establishments, the actual carrying out of policy still remains the responsibility of those authorities. Any other solution would be very controversial and would inevitably run into difficulty. As Mr. Erder said, in a planned system, "planners with their monopoly of programming knowledge and their overall view, easily assume an authority for administrative decisions which is incompatible with their functions. This is a simple process when they can influence decisions regarding budgetary allocations, which

is the case in Turkey. This may be justified in the initial stages, but in the long run it can develop into a situation with all the consequences such a pathological situation entails."

Secondly, the question of choice between a centralised or a secentralised education administration. This question was analysed in all its aspects by Mr. Brand. During the discussion it became clear that the notions of centralisation and decentralisation were not always clear : the French system of higher education is for instance in some ways one of the most centralised in the world, for the universities are closely dependent on the Ministry of National Education; in other ways, however, it is surprisingly decentralised, because a great many establishments, particularly of a scientific and technical nature, function independently of, or are only marginally linked with the universities, under boards of administration which have wide freedom of decision. Much might be said on both sides of the centralisation/decentralisation question - financially, decentralisation encourages local initiative, but centralisation enables funds to be more fairly shared out over the country as a whole. From the teaching point of view, sometimes one and sometimes the other system seems most convenient when adjusting methods and syllabuses to the needs of a changing world. No definite conclusions can therefore be drawn from such a discussion, and it is necessary to fall back on national tradition in this matter.

Many other points were briefly touched on, sometimes incidentally. It is worth trying to list them, even in part, if only to induce OECD or some other national or international institution to go further into the matter.

Some of these questions concern the actual siting of the schools.

The most important is that of location. Mr. Poignant recalled that the siting of new schools is an ideal instrument of regional economic development policy. For this reason, in France, location is decided on jointly by the Ministry of National Education (which has national and regional committees for this purpose) and by the *Délégation Générale à l'Aménagement du Territoire* which depends on the Prime Minister. In other countries, which are more concerned with improving educational facilities than with ensuring an economic equilibrium between the various areas, location of schools requires very detailed studies of the distribution of population, transport facilities and accommodation of pupils ; educational areas and the bodies responsible for them very often have to be fundamentally modified.

For the actual building, it is necessary to know, before any land is purchased or architects appointed, the size the unit is to be, its functions and the amount of money available. To this end, not only do arrangements have to be made for co-operation between educators, public health experts, builders and administrators, but operating principles have to be laid down in advance. Mr. Haythorne reported, for instance, on the norms laid down in Canada for the optimum size of secondary schools. Mention may also be made of the work undertaken by OECD with the object of reducing the cost of university buildings without impairing their efficiency.

A second series of questions concerns the type of school to be built and the internal lay-out. These questions are closely linked with that of the centralisation or decentralisation of educational administration, because the degree of scholastic and financial independence left to schools depends largely on their nature. Two, among these questions, should be mentioned :

whether secondary schools should be separate or comprehensive. With the gradual disappearance of the demarcation between primary and secondary education and, within the latter, between general and technical education, the regrouping of pupils into one establishment or "campus" would apparently avoid social segregation and facilitate the choice of or transfer from one branch of education to another. This is the trend that can be observed, for example, in Canada, with the spread of comprehensive schools in several Provinces ;

whether universities should specialise in certain disciplines or increase the number of their faculties or departments. This question includes that of the affiliation of colleges or institutes to the university - a common practice in some countries - and of the separation sometimes suggested between research and teaching universities (or, in a single university, between research and teaching departments).

A third series of organisational questions concerns the administrative aspects of teaching. Among these may be mentioned :

the procedure for selecting students for admission to the different levels of education and for awarding diplomas at the end of their studies. Such procedure should be designed to avoid as far as possible the waste of effort and resources caused by drop-out during the course, repeating classes or failure in final examinations ;

the introduction of schemes for guiding students, for which co-operation between educators and labour market specialists is essential ;

all aspects of administration, including the recruitment of and provision of suitable working facilities for teachers, their relations with the school or university authorities, co-operation with their colleagues, etc. This requires the settling of such delicate questions as the transfer of teachers from secondary to higher education, or the employment of part-time teachers.

CONCLUSION

Need to develop educational research

Throughout the meeting it was clear that much had still to be learned about the framing and applying of educational policy, particularly with regard to such practical matters as methods of passing from an educational development plan to concrete building proposals, institutional reforms or teaching innovations. The most noticeable progress made was in connection with statistics. Mr. Poignant pointed out that in France planning had led to educational statistical services being set up at national and regional levels. Much remains, however, to be done in this matter, and Mr. Goldstein urged that a new effort be made at the national level or even if necessary, under "international leadership".

Mr. Debeauvais submitted a list of subjects suitable for further research. For each of them, it would be necessary first to investigate the *process of decision-making* as the institutional structures and regulations often conceal very different underlying facts. Among the subjects suggested were :

the interaction between social environment and education ;

the fundamental aims of education in relation to national traditions (the widening of knowledge, adaptation to social life, forming of individual character, etc.) and their implications ;

levels of responsibility in education and the degree of independence in decisions relating to teaching, finance and administration ;

administrative questions raised by carrying out of education plans ; etc.

Incidentally, the French expert did not gloss over the difficulties in the way of such research, which was absolutely indispensable if precise instruments of analysis were to be available. First among them he listed lack of conviction among those in command ; then the reluctant attitude of educators, the responsible administrations and society as a whole. Educational research had necessarily to look forward ; this marked a break with traditional ways of thinking and the established order, and therefore disturbed all those whose intellectual comfort or even position might be upset by its results. Finally, Mr. Debeauvais suggested how the work he envisaged could bear fruit. He prescribed three conditions that would help to give priority to directed research:

research projects, and not research workers, must be financed;

teams must be set up : the "consultants", dear to international organisations, were insufficient. It assumed that people could be approached who "knew the answers" and could provide them on request, without any further systematic study, which was in fact not the case;

lastly, the time allowed must not, in an attempt to give the appearance of economy or efficiency, be too short. Short-term research contracts did not encourage research but, at best, merely the compiling of knowledge already acquired.

Steps in the direction recommended by Mr. Debeauvais have already been or are to be taken by some countries. In France, for example, Mr. Poignant noted, appropriations have been made for "studies and preliminary research for the Plan"; these appropriations amount to F. 20.000 million, one-quarter of which in devoted to the economic and social aspects of education (excluding actual teaching); the *Commissariat Général du Plan* handles these appropriations in the form of contracts with specialised institutes. Mr. Haythorne reported the initiative taken by the Canadian Federal Department of Labour : the launching of a research programme within the universities, the organisation of teams of young research workers meeting during the University vacation periods, and the financing of research projects carried out in the Provinces. OECD, for its part, proposes to guide the work of research institutes by means of its study of investment in education : contracts have already been drawn up in Sweden and the Netherlands. The fear was expressed however, by Mr. von Nutius that the teacher-training institutes might not be well fitted to deal with economic or organisational questions. To ease this difficulty, the German expert would like to see an arrangement similar to that evolved by the research department of Euratom : the compiling, for example by OECD, of a fairly detailed list of research projects to be undertaken and a commitment to give financial assistance to any research worker or research organisation agreeing to study any question on the list under conditions laid down in advance.

Final observation on "lifetime" education

Unfortunately the Working Party was unable to discuss the paper submitted by Mrs. Selma Mushkin. The main content of that paper is an original and concrete proposal for financing "recycling" sessions. Apart from this proposal, however, its main interest is that it raises questions dealt with at the meeting on "lifetime education". This was certainly not sufficiently discussed during the debate. It is nevertheless certain that education is nowadays less and less confined to the years spent at school or in an establishment of higher education. Some countries are beginning to reconsider their entire educational system, starting from the principle that education is a continuing process which must be carried on at least throughout the greater part of a career. It may be claimed without risk of error that, in the next few decades, the organisational formulae now being worked out or revised will give way to others guided by aims which will be cultural as much as vocational, social as much as individual, for general and continuous education. It is perhaps not too soon to give this some thought.

STUDY GROUP IN THE ECONOMICS OF EDUCATION

4th, 5th and 6th November 1963,
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Organisational Problems in Planning Educational Development

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